



Service Manual

KG220



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1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system. There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of common-carrier telecommunication service of facilities accessed through or connected to it. The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the this phone or compatibility with the network, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on this model must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

1. INTRODUCTION

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

Phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated  by the sign. Following information is ESD handling:

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

1.3 Abbreviations

For the purposes of this manual, following abbreviations apply:

APC	Automatic Power Control
BB	Baseband
BER	Bit Error Ratio
CC-CV	Constant Current - Constant Voltage
DAC	Digital to Analog Converter
DCS	Digital Communication System
dBm	dB relative to 1 milli watt
DSP	Digital Signal Processing
EEPROM	Electrical Erasable Programmable Read-Only Memory
ESD	Electrostatic Discharge
FPCB	Flexible Printed Circuit Board
GMSK	Gaussian Minimum Shift Keying
GPIO	General Purpose Interface Bus
GSM	Global System for Mobile Communications
IPUI	International Portable User Identity
IF	Intermediate Frequency
LCD	Liquid Crystal Display
LDO	Low Drop Output
LED	Light Emitting Diode
OPLL	Offset Phase Locked Loop

1. INTRODUCTION

PAM	Power Amplifier Module
PCB	Printed Circuit Board
PGA	Programmable Gain Amplifier
PLL	Phase Locked Loop
PSTN	Public Switched Telephone Network
RF	Radio Frequency
RLR	Receiving Loudness Rating
RMS	Root Mean Square
RTC	Real Time Clock
SAW	Surface Acoustic Wave
SIM	Subscriber Identity Module
SLR	Sending Loudness Rating
SRAM	Static Random Access Memory
PSRAM	Pseudo SRAM
STMR	Side Tone Masking Rating
TA	Travel Adapter
TDD	Time Division Duplex
TDMA	Time Division Multiple Access
UART	Universal Asynchronous Receiver/Transmitter
VCO	Voltage Controlled Oscillator
VCTCXO	Voltage Control Temperature Compensated Crystal Oscillator
WAP	Wireless Application Protocol

2. PERFORMANCE

2.1 H/W Features

Item	Feature	Comment
Standard Battery	Li-ion, 830mAh	
Stand by TIME	Up to 200 hrs : Paging Period 9, RSSI 85dBm	
Talk time	Up to 200min : GSM Tx Level 7	
Stand by time	Up to 200 hours (Paging Period: 9, RSSI: -85 dBm)	
Charging time	Approx. 3 hours	
RX Sensitivity	GSM, EGSM: -109dBm, DCS: -109dBm	
TX output power	GSM, EGSM: 32.5dBm(Level 5), DCS , PCS: 29.5dBm(Level 0)	
GPRS compatibility	Class 10	
SIM card type	3V Small	
Display	LCD : CSTN 128 × 128 pixel 65K Color	
Status Indicator	Hard icons. Key Pad 0 ~ 9, #, *, Up/Down Navigation Key Menu Key, Clear Key Send Key, END/PWR Key Soft Key(Left/Right)	
ANT	Internal	
EAR Phone Jack	Yes (mono)	
PC Synchronization	Yes	
Speech coding	EFR/FR/HR	
Data and Fax	Yes	
Vibrator	Yes	
Loud Speaker	Yes	
Voice Recoding	Yes	
Microphone	Yes	
Speaker/Receiver	One way speaker	
Travel Adapter	Yes	
MIDI	40 Poly (Mono SPK)	
Camera	VGA	

2. PERFORMANCE

2.2 Technical Specification

Item	Description	Specification																																																						
1	Frequency Band	GSM • TX: 890 + n x 0.2 MHz • RX: 935 + n x 0.2 MHz (n=1~124) EGSM • TX: 890 + (n-1024) x 0.2 MHz • RX: 935 + (n-1024) x 0.2 MHz (n=975~1024) DCS • TX: 1710 + (n-512) x 0.2 MHz • RX: 1805 + (n-512) x 0.2 MHz (n=512~885)																																																						
2	Phase Error	RMS < 5 degrees Peak < 20 degrees																																																						
3	Frequency Error	< 0.1 ppm																																																						
4	Power Level	GSM, EGSM																																																						
		<table><tr><th>Level</th><th>Power</th><th>Toler.</th><th>Level</th><th>Power</th><th>Toler.</th></tr><tr><td>5</td><td>33 dBm</td><td>±2dB</td><td>13</td><td>17 dBm</td><td>±3dB</td></tr><tr><td>6</td><td>31 dBm</td><td>±3dB</td><td>14</td><td>15 dBm</td><td>±3dB</td></tr><tr><td>7</td><td>29 dBm</td><td>±3dB</td><td>15</td><td>13 dBm</td><td>±3dB</td></tr><tr><td>8</td><td>27 dBm</td><td>±3dB</td><td>16</td><td>11 dBm</td><td>±5dB</td></tr><tr><td>9</td><td>25 dBm</td><td>±3dB</td><td>17</td><td>9 dBm</td><td>±5dB</td></tr><tr><td>10</td><td>23 dBm</td><td>±3dB</td><td>18</td><td>7 dBm</td><td>±5dB</td></tr><tr><td>11</td><td>21 dBm</td><td>±3dB</td><td>19</td><td>5 dBm</td><td>±5dB</td></tr><tr><td>12</td><td>19 dBm</td><td>±3dB</td><td></td><td></td><td></td></tr></table>	Level	Power	Toler.	Level	Power	Toler.	5	33 dBm	±2dB	13	17 dBm	±3dB	6	31 dBm	±3dB	14	15 dBm	±3dB	7	29 dBm	±3dB	15	13 dBm	±3dB	8	27 dBm	±3dB	16	11 dBm	±5dB	9	25 dBm	±3dB	17	9 dBm	±5dB	10	23 dBm	±3dB	18	7 dBm	±5dB	11	21 dBm	±3dB	19	5 dBm	±5dB	12	19 dBm	±3dB			
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2. PERFORMANCE

Item	Description	Specification	
5	Output RF Spectrum (due to modulation)	GSM, EGSM	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600~ <1,200	-60
		1,200~ <1,800	-60
		1,800~ <3,000	-63
		3,000~ <6,000	-65
		6,000	-71
		DCS	
		Offset from Carrier (kHz).	Max. dBc
		100	+0.5
		200	-30
		250	-33
		400	-60
		600~ <1,200	-60
		1,200~ <1,800	-60
		1,800~ <3,000	-65
		3,000~ <6,000	-65
		6,000	-73
6	Output RF Spectrum (due to switching transient)	GSM, EGSM	
		Offset from Carrier (kHz)	Max. (dBm)
		400	-19
		600	-21
		1,200	-21
		1,800	-24

2. PERFORMANCE

Item	Description	Specification		
6	Output RF Spectrum (due to switching transient)	DCS		
		Offset from Carrier (kHz).		Max. (dBm)
		400		-22
		600		-24
		1,200		-24
		1,800		-27
7	Spurious Emissions	Conduction, Emission Status		
8	Bit Error Ratio	GSM, EGSM BER (Class II) < 2.439% @-102 dBm DCS BER (Class II) < 2.439% @-100 dBm		
9	RX Level Report Accuracy	±3 dB		
10	SLR	8 ±3 dB		
11	Sending Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	0	-12
		1,000	0	-6
		2,000	4	-6
		3,000	4	-6
		3,400	4	-9
		4,000	0	-
12	RLR	2 ±3 dB		
13	Receiving Response	Frequency (Hz)	Max.(dB)	Min.(dB)
		100	-12	-
		200	0	-
		300	2	-7
		500	*	-5
		1,000	0	-5
		3,000	2	-5
		3,400	2	-10
		4,000	2	
		* Mean that Adopt a straight line in between 300 Hz and 1,000 Hz to be Max. level in the range.		

2. PERFORMANCE

Item	Description	Specification	
14	STMR	13 ± 5 dB	
15	Stability Margin	> 6 dB	
16	Distortion	dB to ARL (dB)	Level Ratio (dB)
		-35	17.5
		-30	22.5
		-20	30.7
		-10	33.3
		0	33.7
		7	31.7
		10	25.5
17	Side Tone Distortion	Three stage distortion < 10%	
18	System frequency (13 MHz) tolerance	≤ 2.5 ppm	
19	32.768KHz tolerance	≤ 30 ppm	
20	Ringer Volume	At least 65 dBspl under below conditions: 1. Ringer set as ringer. 2. Test distance set as 50 cm	
21	Charge Current	Fast Charge : < 430 mA Slow Charge : < 160 mA	
22	Antenna Display	Antenna Bar Number	Power
		5	-85 dBm ~
		4	-90 dBm ~ -86 dBm
		3	-95 dBm ~ -91 dBm
		2	-100 dBm ~ -96 dBm
		1	-105 dBm ~ -101 dBm
		0	~ -105 dBm
23	Battery Indicator	Battery Bar Number	Voltage
		0	3.48 ~ 3.63 V
		1	3.63 ~ 3.70 V
		2	3.70 ~ 3.76 V
		3	3.76 ~ 3.89 V
		4	3.89 V ~
24	Low Voltage Warning	3.63 ± 0.03 V (Call) every 1 minutes	
		3.48 ± 0.03 V (Standby)	

2. PERFORMANCE

Item	Description	Specification
25	Forced shut down Voltage	3.33 ± 0.03 V
26	Battery Type	1 Li-ion Battery Standard Voltage = 3.7 V Battery full charge voltage = 4.2 V Capacity: 830mAh
27	Travel Charger	Switching-mode charger Input: 100 ~ 240 V, 50/60 Hz Output: 5.2 V, 800 mA

3. TECHNICAL BRIEF

3.1 Power Transceiver (SKY77328, U500)

The SKY77328 Power Amplifier Module (PAM) is designed in a low profile (1.2 mm), compact form factor for quad-band cellular handsets comprising GSM850/900, DCS1800, and PCS1900 operation. The PAM also supports Class 12 General Packet Radio Service (GPRS) multi-slot operation. The module consists of separate GSM850/900 PA and DCS1800/PCS1900 PA blocks, impedancematching circuitry for 50 Ω input and output impedances, and a Power Amplifier Control (PAC) block with an internal current-sense resistor. The custom BiCMOS integrated circuit provides the internal PAC function and interface circuitry. Fabricated onto a single Gallium Arsenide (GaAs) die, one Heterojunction Bipolar Transistor (HBT) PA block supports the GSM850/900 bands and the other supports the DCS1800 and PCS1900 bands. Both PA blocks share common power supply pins to distribute current. The GaAs die, the Silicon (Si) die, and the passive components are mounted on a multi-layer laminate substrate. The assembly is encapsulated with plastic overmold. RF input and output ports of the SKY77328 are internally matched to a 50 Ω load to reduce the number of external components for a quad-band design. Extremely low leakage current (2.5 μ A, typical) of the dual PA module maximizes handset standby time. The SKY77328 also contains band-select switching circuitry to select GSM (logic 0) or DCS/PCS (logic 1) as determined from the Band Select (BS) signal. In Figure 1 below, the BS pin selects the PA output (DCS/PCS OUT or GSM850/900 OUT) and the Analog Power Control (VAPC) controls the level of output power. The VBATT pin connects to an internal current-sense resistor and interfaces to an integrated power amplifier control (iPAC™) function, which is insensitive to variations in temperature, power supply, process, and input power. The ENABLE input allows initial turn-on of PAM circuitry to minimize battery drain. Figure 1. Functional Block Diagram

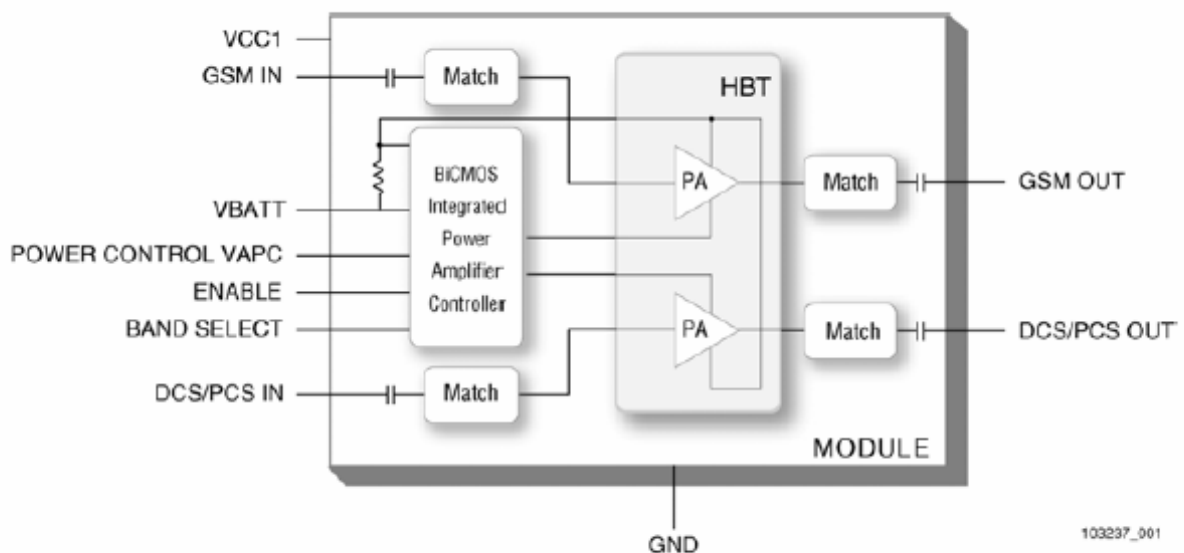
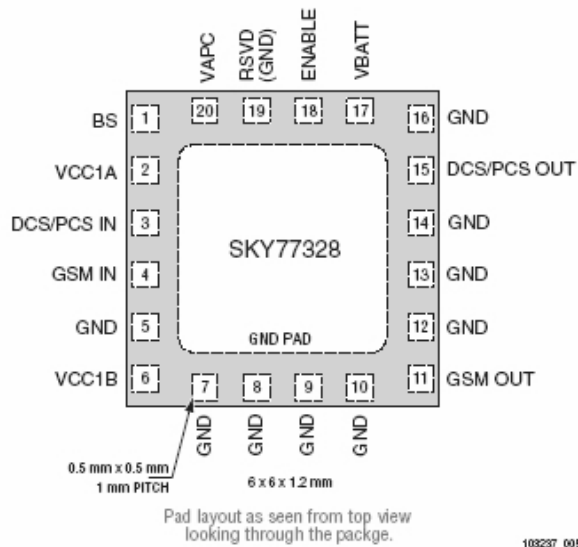


Figure1. Functional Block Diagram

3. TECHNICAL BRIEF



SKY77328 PAM Pin Configuration-20-Pin Leadless (Top View)

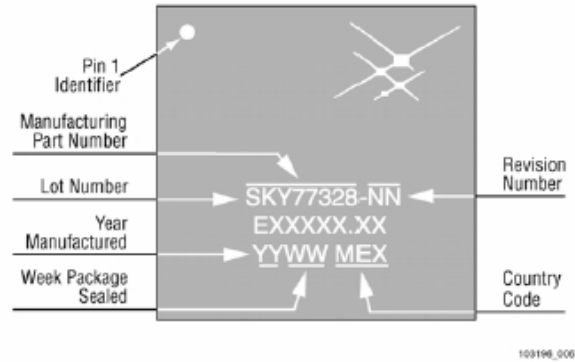


Figure 6. Typical Case Markings

Table 4. SKY77328 Pin Names and Signal Descriptions

Pin	Name	Description
1	BS	Band Select
2	VCC1A	VCC (to GSM 1st stage, DCS/PCS 1st stages, BiCMOS PAC)
3	DCS/PCS IN	RF input 1710-1910 MHz (DCS1800, PCS1900)
4	GND IN	RF input 824-915 MHz (GSM850/900)
5	GND	RF and DC Ground
6	VCC1B	RF and DC Ground
7	GND	RF and DC Ground
8	GND	RF and DC Ground
9	GND	RF and DC Ground
10	GND	RF and DC Ground
11	GSM OUT	RF Output 824-915 MHz (GSM850/900)
12	GND	RF and DC Ground
13	GND	RF and DC Ground
14	GND	RF and DC Ground
15	DCS/PCS OUT	RF Output 1710-1910 MHz (DCS 1800, PCS1900)
17	VBATT	Battery input to high side of internal sense resistor
18	ENABLE	BiCMOS Enable
19	RSVD(GND)	RF and DC Ground
20	VAPC	Power Control Bias Voltage
GMD PAD(21)	GND	Ground Pad, bottom

3.2 FEM for Triband

Select Mode	Vc(EGSM)	Vc(DCS/PCS)
EGSM-Rx	Low	Low
EGSM-Tx	High	Low
DCS-Rx	Low	Low
PCS-Rx	Low	Low
DCS/PCS	Low	High

Table 3-1 Band SW Logic Table

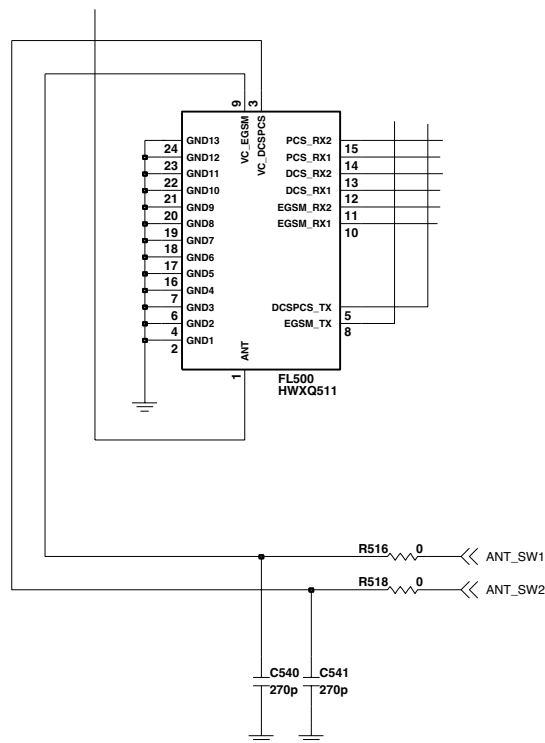


Figure 3- 2 FEM CIRCUIT DIAGRAM

3. TECHNICAL BRIEF

3.3 26 MHz Clock (VCTCXO, X500)

The 26 MHz clock(X500) consists of a TCXO(Temperature Compensated Crystal Oscillator) which oscillates at a frequency of 26 MHz. It is used within the SKY77328, base band processor(AD6720,U101), Midi(U203, YMU762C-QZ) , CAMERA(U403,CL761A)

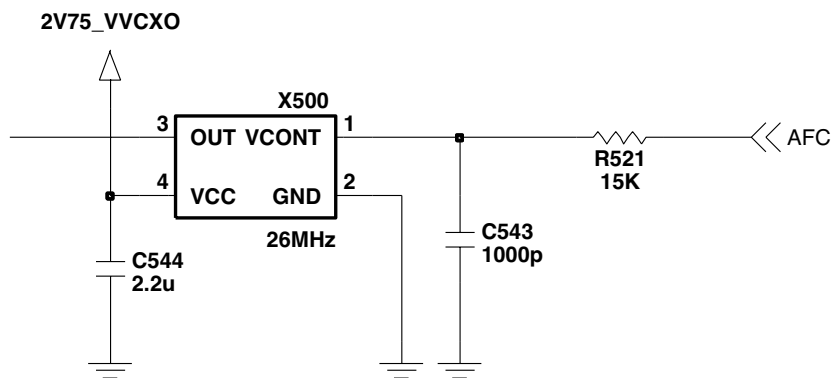


Figure 3-3. VCTCXO CIRCUIT DIAGRAM

3.4 Baseband Processor (AD6720 , U101)

- AD6720 is an ADI designed processor
- AD6720 consists of
 1. Control Processor Subsystem including:
 - 32-bit MCU ARM7TDMI® Control Processor
 - 39 MHz operation at 1.8V
 - 1Mb of on-chip System SRAM Memory
 2. DSP Subsystem including:
 - 16-bit Fixed Point DSP Processor
 - 91 MIPS[1] at 1.8V
 - Data and Program SRAM
 - Program Instruction Cache
 - Full Rate, Enhanced Full Rate and Half Rate
 - Speech Encoding/Decoding
 - Capable of Supporting AMR & PDC Speech Algorithms
 3. Peripheral Functions
 - Parallel and Serial Display Interface
 - Keypad Interface
 - Flash Memory Interface
 - Page-Mode Flash Support
 - 1.8V and 3.0V, 64 kbps SIM Interface
 - Universal System Connector Interface
 - Data Services Interface
 - Battery Interface (e.g. Dallas)
 4. Other
 - Supports 13 MHz and 26 MHz Input Clocks
 - 1.8V Typical Core Operating Voltages
 - 289-Ball Package (12x12mm) , 0.65mm Ball pitch
 5. The AD6720 baseband transmit section supports the following
 - mobile station GMSK modulation power classes:
 - GSM 900/850 power classes 4 and 5,
 - DCS 1800 power classes 1 and 2, and
 - PCS 1900 power classes 1 and 2

3. TECHNICAL BRIEF

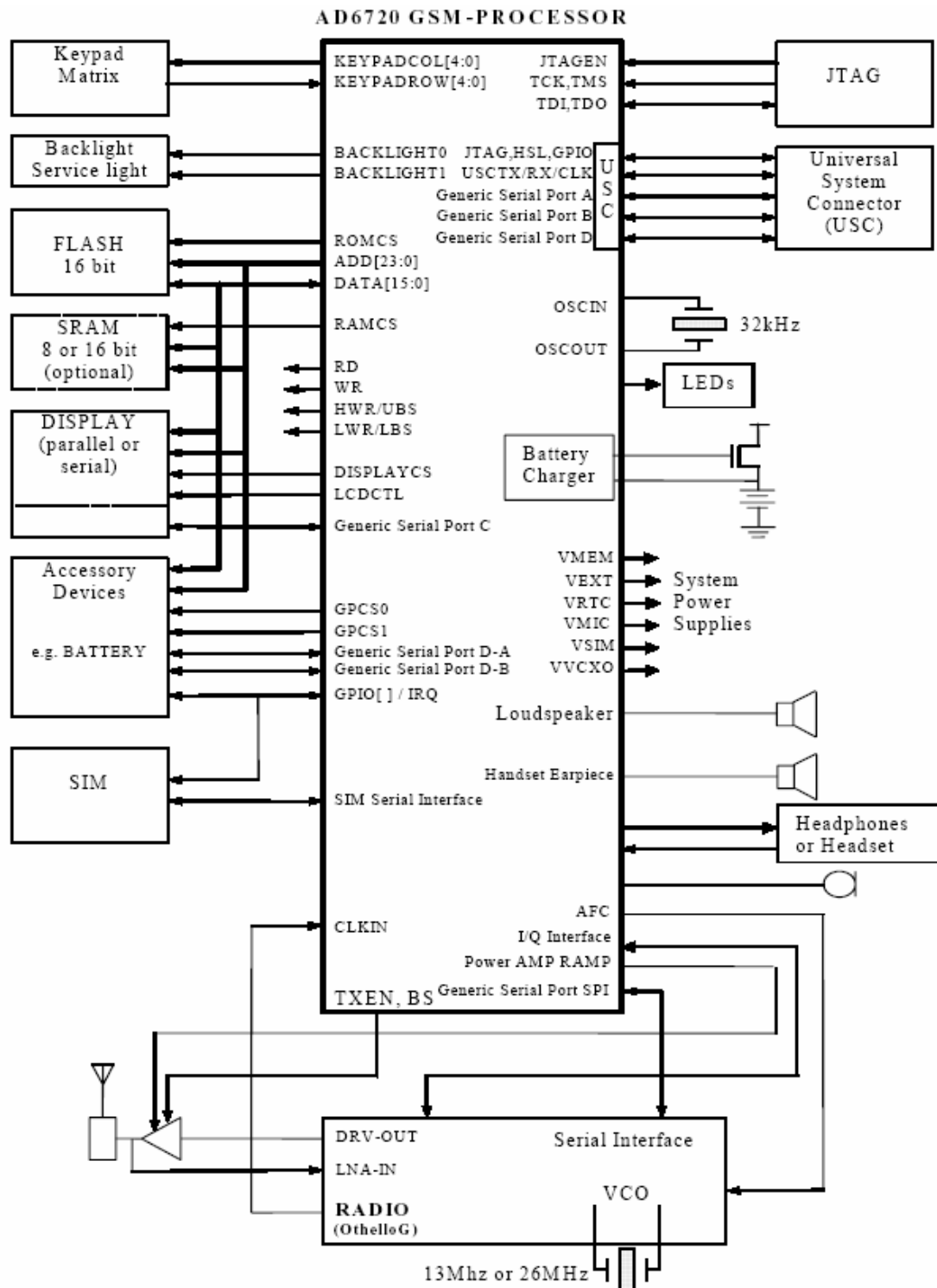


Figure 3-4 SYSTEM INTERCONNECTION OF AD6720 EXTERNAL INTERFACE

3.4.1 Interconnection with external devices

A. RTC block interface

Countered by external X-TAL

The X-TAL oscillates 32.768KHz

B. LCD module interface

The LCD module is controlled by CAMERA IC, CL761A

If CL761A is in the state of by-pass mode, the LCD control signals from AD6720 are by-passed through CL761A.

In operating mode, the CL761A controls the LCD module through L_MAIN_LCD_CS, L_SUB_LCD_CS, LCD_RESET, LCD_RS, LCD_WR, LCD_RD, L_DATA[15-00], 2V85_VCAM, IF_MODE, LCD_ID[1:3].

Signals	Description
L_MAIN_LCD_CS	MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
LCD_ID1	Select LCD module maker(2.4V : SII, 0V : HyeLCD)
LCD_RESET	This pin resets LCD module. This signal comes from AD6720 directly.
LCD_WR	Enable writing to LCD Driver.
LCD_RD	Enable reading to LCD Driver.
LCD_RS	This pin determines whether the data to LCD module are display data or control data. LCD_RS can select 16 bit parallel bus.
2V85_VCAM	2.85V voltage is supplied to LCD driver IC.
IF_MODE	Select 16bits or 8bits interface mode for MAIN LCD. For the future

Table 3-2 . LCD CONTRON SIGNALS DISCRIPTION

3. TECHNICAL BRIEF

The backlight of LCD module is controlled by AD6720 via AAT3157 , U404. The control signals related to Backlight LED are given bellow.

Signals	Description
MLED	Current source for backlight LED
LCD_DIM_CTL	Control LCD backlight level in 16 steps
MLED[1:2]	This pins are returned-paths for backlight LED current source (MLED)

Table 3-3. DESCRIPTION OF LCD BACKLIGHT LED CONTROL

C. RF interface

The AD6720 control RF parts through PA_BAND, ANT_SW1, ANT_SW2, ANT_SW3 , CLKON , PA_EN, S_EN, S_DATA, S_CLK, RF_PWR_DWN.

Signals	Description
PA_BAND (GPO 17)	PAM Band Select
ANT_SW1 (GPO 9)	Antenna switch Band Select
ANT_SW2 (GPO 11)	Antenna switch Band Select
RF_PWR_DWN(GPO 4)	Power down Input
CLKON	RF LDO Enable/Disable
PA_EN (GPO 16)	PAM Enable/Disable
S_EN (GPO 19)	PLL Enable/Disable
S_DATA (GPO 20)	Serial Data to PLL
S_CLK (GPO 21)	Clock to PLL

Table 3-4. RF CONTROL SIGNALS DESCRIPTION

The AD6720 provides SIM Interface Module. The AD6720 checks status periodically during established call mode whether SIM card is inserted or not, but it doesn't check during deep Sleep mode. In order to communicate with SIM card, 3 signals SIM_DATA, SIM_CLK, SIM_RST(GPIO_23) are required. The descriptions about the signals are given by bellow Table 3-5 in detail.

Table 3-5. SIM CONTROL SIGNALS DESCRIPTION



3. TECHNICAL BRIEF

E. LDO Block

There are 8 LDOs in the AD6720.

- VCORE : supplies Digital baseband Processor core and AD6720 digital core
- VMEM : supplies external memory and the interface to the external memory on the digital baseband processor (1.8V or 2.8V, 150mA)
- VEXT : supplies Radio digital interface and high voltage interface (2.8V, 170mA)
- VSIM : supplies the SIM interface circuitry on the digital processor and SIM card (2.85V, 20mA)
- VRTC : supplies the Real-Time Clock module (1.8 V, 20 μ A)
- VABB : supplies the analog portions of the AD6720
- VMIC : supplies the microphone interface circuitry (2.5 V, 1 mA)
- VVCXO : supplies the voltage controlled crystal oscillator (2.75 V, 10 mA)

3.5 Battery Charging Block

1. It can be used to charge Lithium Ion batteries.

Charger initialization, trickle charging, and Li-Ion charging control are implemented in hardware.

2. Charging Process

- Check charger is inserted or not
- If AD6720 detects that Charger is inserted, the CC-CV charging starts.
- Exception : When battery voltage is lower than 3.2V, the precharge(low current charge mode) starts firstly.
- And the battery voltage reach to 3.2V the CC-CV charging starts.

3. Pins used for charging

- VCHG : charger supply.
- GATEDRIVE : charge DAC output
- ISENSE : charge current sense input
- VBATSENSE : battery voltage sense input.
- BATTYPE : battery type identification input
- REFCHG : voltage reference output

4. TA (Travel Adaptor)

- Input voltage: AC 85V ~ 260V, 50~60Hz
- Output voltage: DC 5.2V (0.2 V)
- Output current: Max 800mA (50mA)

5. Battery

- Li-ion battery (Max 4.2V, Nom 3.7V)
- Standard battery: Capacity - 830mAh

3. TECHNICAL BRIEF

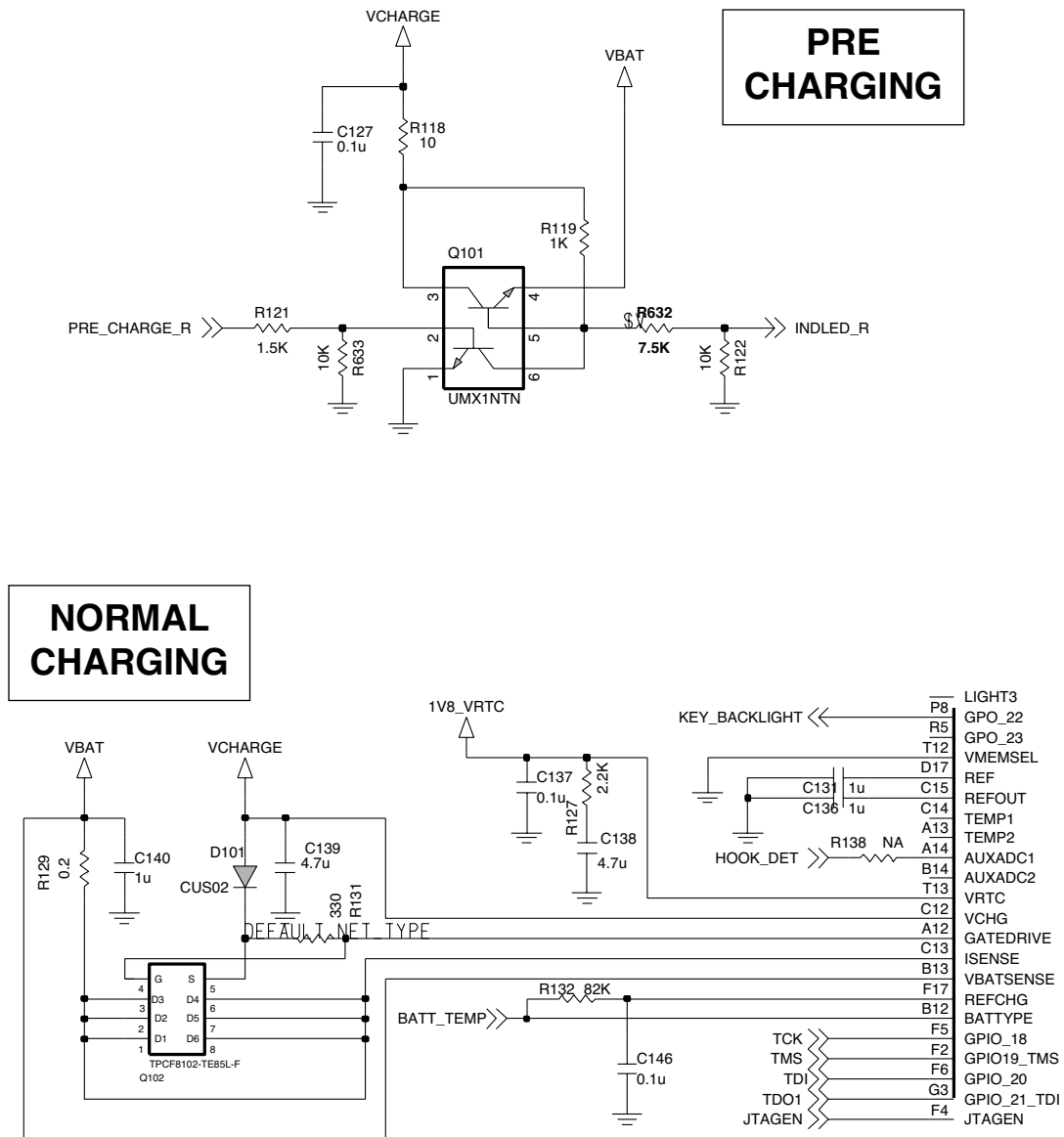


Figure 3-6. CIRCUIT FOR BATTERY CHARGING

3. TECHNICAL BRIEF

3.6 Display and Interface

- Main LCD

Properties	Spec.	Unit
Active Screen Size	35.78*40.05*2.8	mm
Color Depth	65,536	colors
Resolution	128 X RGB X 128	dots

Controlled by L_MAIN_LCD_CS, LCD_RESET, LCD_RS, LCD_WR, LCD_RD, IFMODE, L_DATA[00:15] ports

- L_MAIN_LCD_CS : MAIN LCD driver chip enable. MAIN LCD driver IC has own CS pin
- LCD_RST : This pin resets LCD module. This signal comes from AD6720 directly.
- LCD_RS: This pin determines whether the data to LCD module are display data or control data.
- L_WR : Write control Signal
- L_RD : Read control Signal. But this pin used only for debugging.
- L_DATA[00:15] : Parallel data lines.
- LCD_ID[1:2] : LCD type selection signals
 - LCD_ID1 : LCD maker(2.4V is SII, 0V is HyeLCD)
 - LCD_ID[2:3] : for the future using
- For using 65K color, data buses should be 16 bits.

VGA CAMERA
128x128LCD CONNECTOR

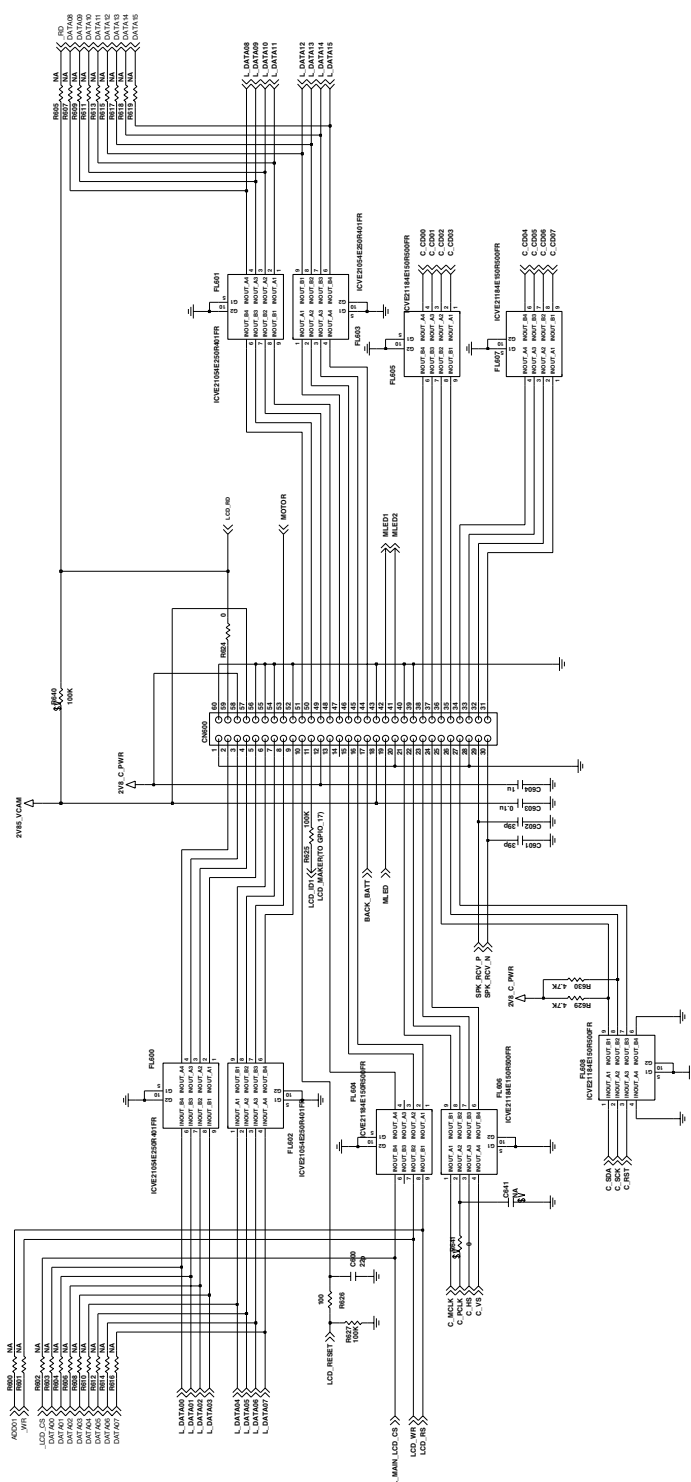


Figure 3-7. LCD INTERFACE CIRCUIT

3. TECHNICAL BRIEF

3.7 Camera IC(CL761A , U403)

This model has a built-in VGA(640 x 480) camera module. And the camera produces JPG pictures. Camera module is controlled by CL761A. Interface is done by I2C and YCbCr format. I2C is a control signal and YCbCr is real data interface signal.

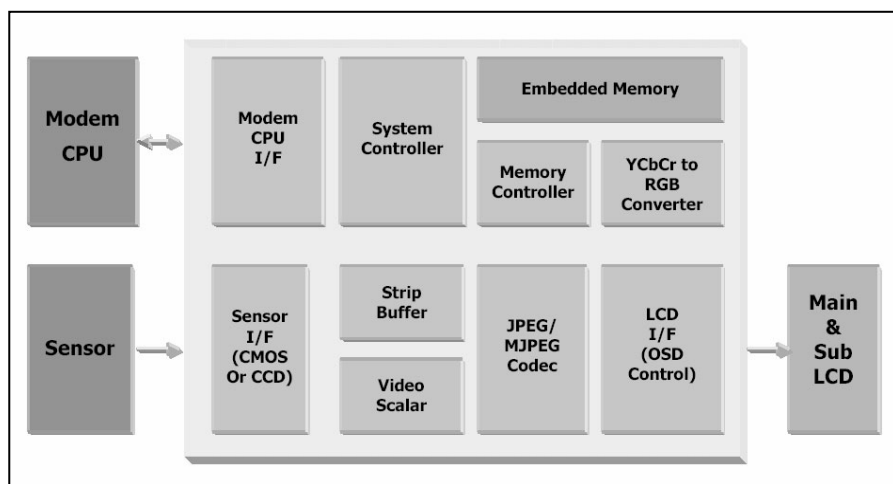


Figure 3-8. CL761A BLOCK DIAGRAM

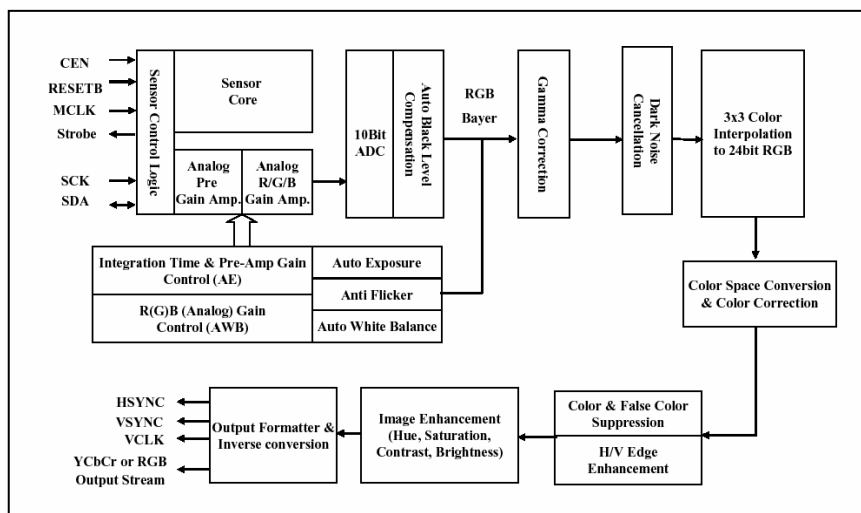


Figure 3-9. SENSOR CHIP BLOCK DIAGRAM



3. TECHNICAL BRIEF

3.8 Keypad Switches and Scanning

The key switches are metal domes, which make contact between two concentric pads on the keypad layer of the PCB when pressed. There are 26 switches (Normal Key 24EA, Volume up down side key), connected in a matrix of 5 rows by 5 columns and additional GPIO 35 for KEY_ROW5, as shown in Figure 3-11, except for the power switch (KB1), which is connected independently. Functions, the row and column lines of the keypad are connected to ports of AD6720. The columns are outputs, while the rows are inputs and have pull-up resistors built in. When a key is pressed, the corresponding row and column are connected together, causing the row input to go low and generate an interrupt. The columns/rows are then scanned by AD6720 to identify the pressed key.

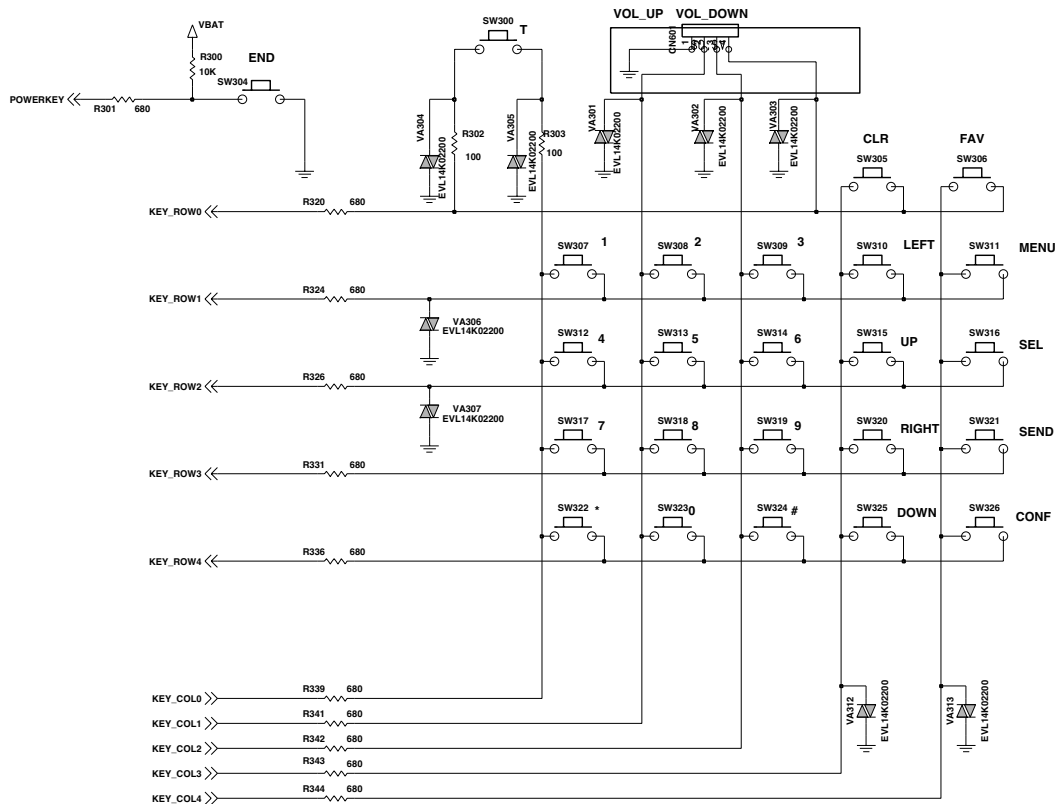


Figure 3-11. Keypad Switches and Scanning

3.9 Microphone

The microphone is placed to the front cover and contacted to main PCB. The audio signal is passed to AIN1P and AIN1N pins of AD6720. The voltage supply VMIC is output from AD6720, and is a biased voltage for the AIN1P. The AIN1P and AIN1N signals are then A/D converted by the voiceband ADC part of AD6720. The digitized speech (PCM 8KHz , 16KHz) is then passed to the DSP section of AD6720 for processing (coding, interleaving etc).

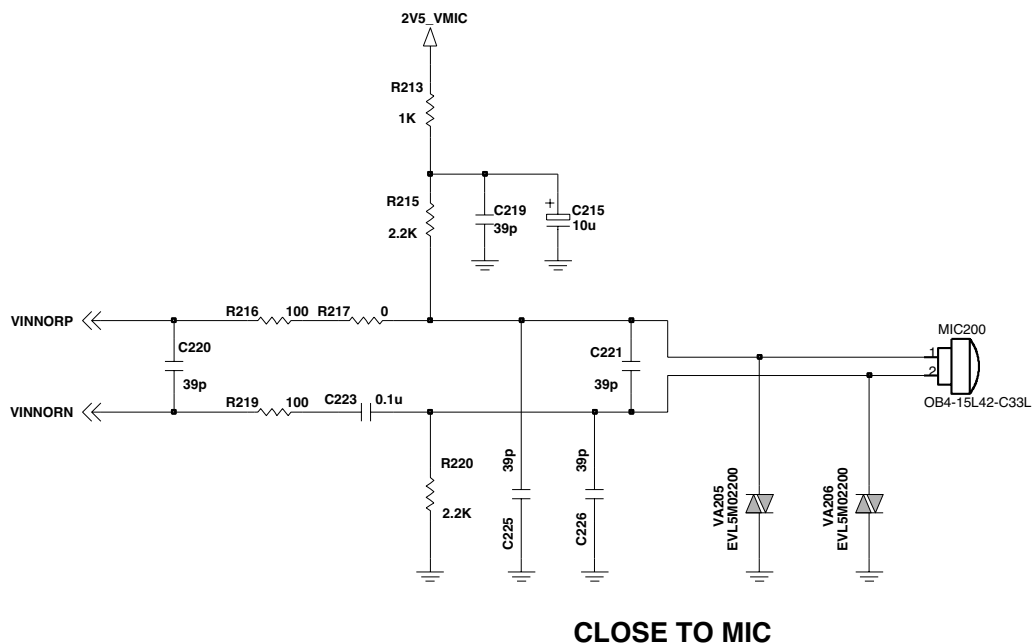


Figure 3-12. Connection between Microphone and AD6535

The main speaker is driven directly by AD6720 AOUT1P and AOUT1N pins and the gain is controlled by the PGA in an AD6720. The receiver is placed in the folder cover and connected to AOUT1x terminal via FPCB.



3.11 Headset Interface

This phone has 6 electrodes such as GND, AUXIP, AUXIN (this pin is floating), AUXOP, JACK_DETECT, HOOK_DETECT. This type supports mono sound

Switching from Receiver to Headset Jack

If jack is inserted, JACK_DETECT goes from low to high.

Audio path is switched from receiver to earphone by JACK_DETECT interrupt.

Switching from Headset Jack to Receiver

If jack is removed, JACK_DETECT goes from high to low.

Audio path is switched from earphone to receiver by JACK_DETECT interrupt.

Hook detection

If hook-button is pressed, HOOK_DETECT is changed from high to low.

This is detected by AUXADC2.

And then hook is detected.

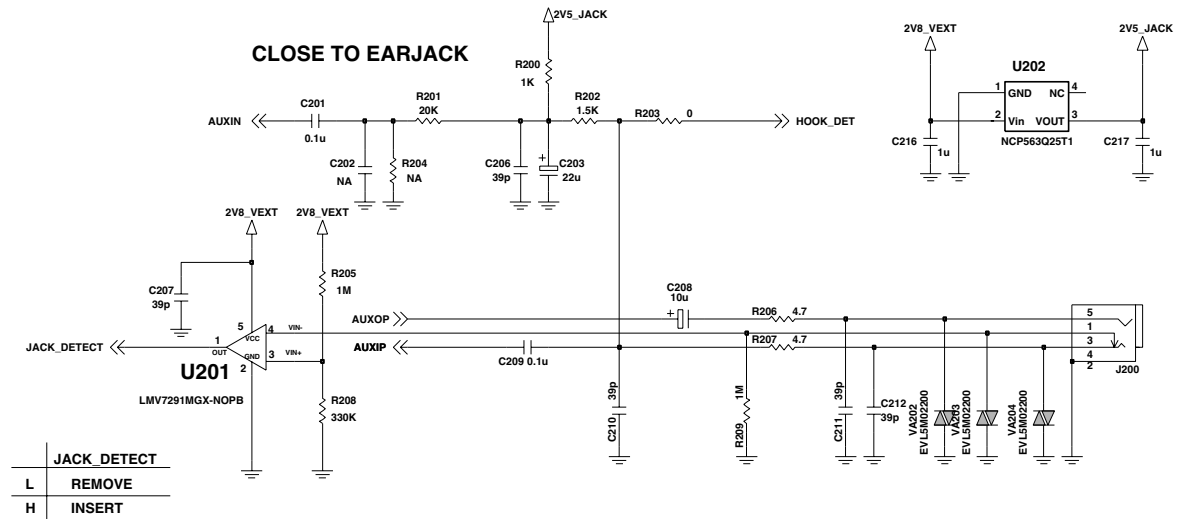


Figure 3-14. HEADSET JACK INTERFACE

3. TECHNICAL BRIEF

3.12 Key Back-light Illumination

In key back-light illumination, there are 14 Blue LEDs in Main Board, which are driven by KEY_BACKLIGHT signal from AD6720.

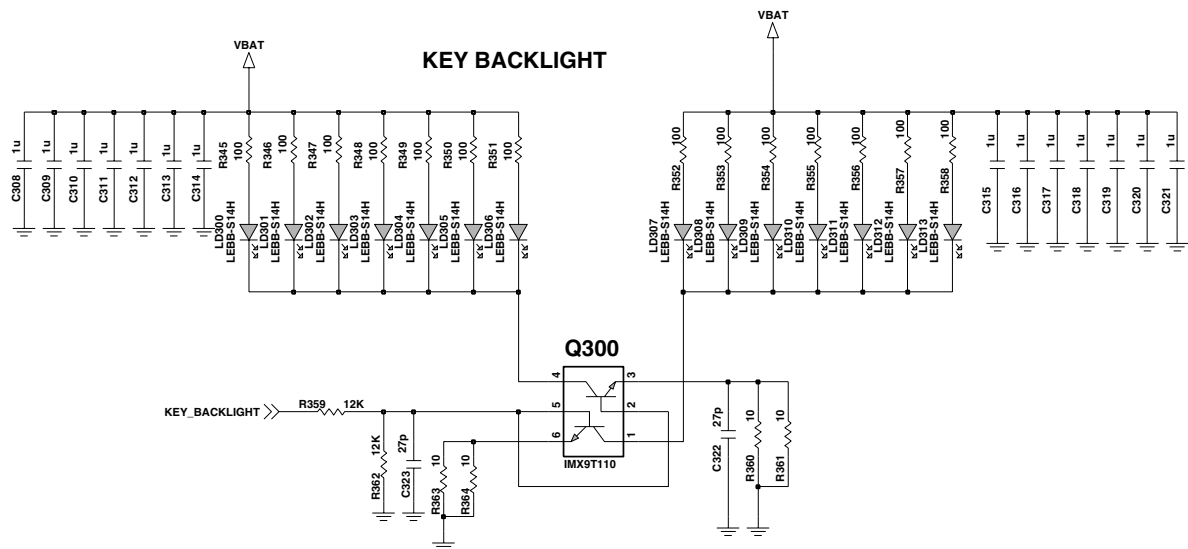


Figure 3-15. KEY BACK-LIGHT ILLUMINTION

3.13 LCD Back-light Illumination

LCD backlight LEDs is controlled by AD6720 via AAT3157, U404.

WHITE_LED LDO

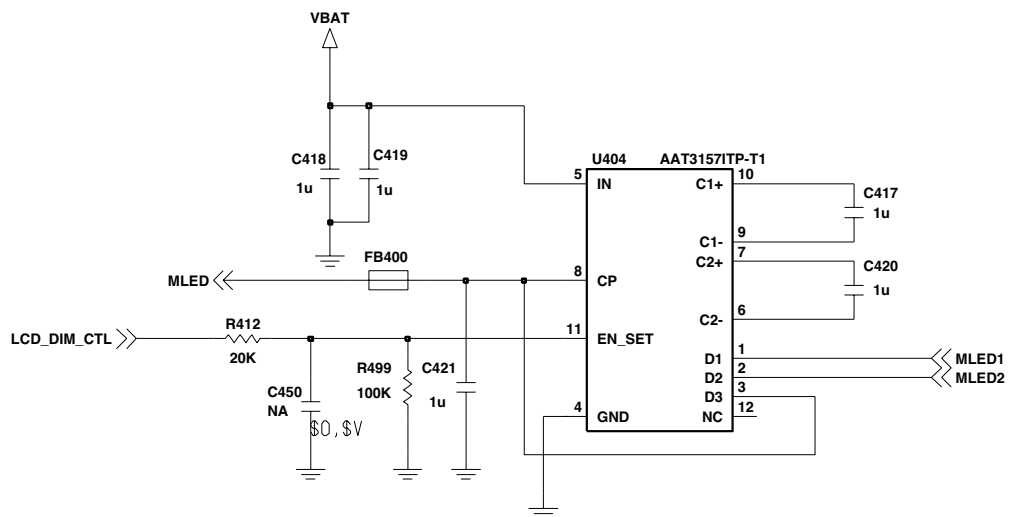


Figure 3-16. MAIN LCD BACKLIGHT ILLUMINATION

3. TECHNICAL BRIEF

3.14 VIBRATOR

The vibrator is placed in the folder cover and contacted to LCD MODULE. The vibrator is driven from VIBRATOR (GPIO_0) of AD6720

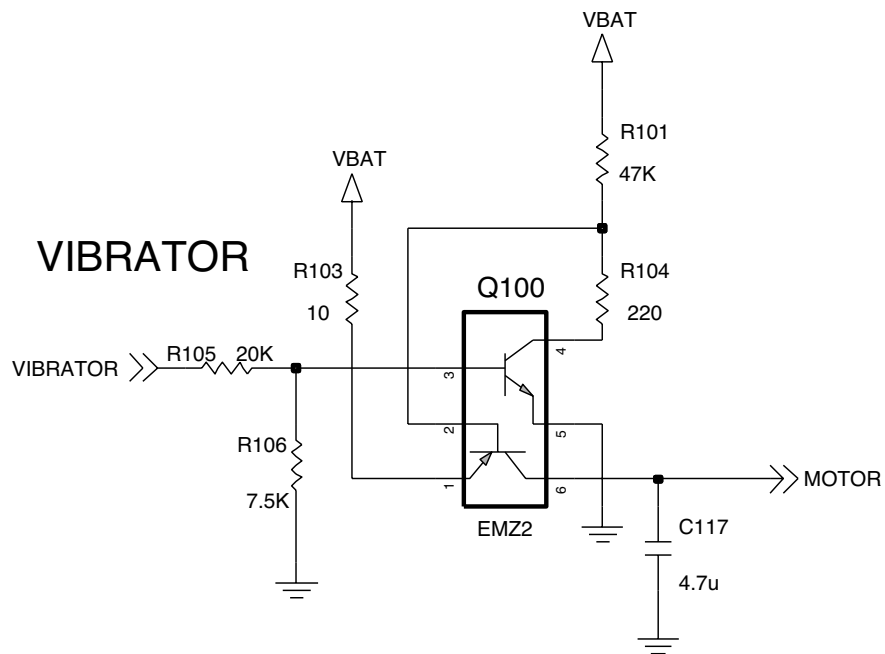


Figure 3-17. MOTOR

4. TROUBLE SHOOTING

4.1 RF Component

TEST POINT

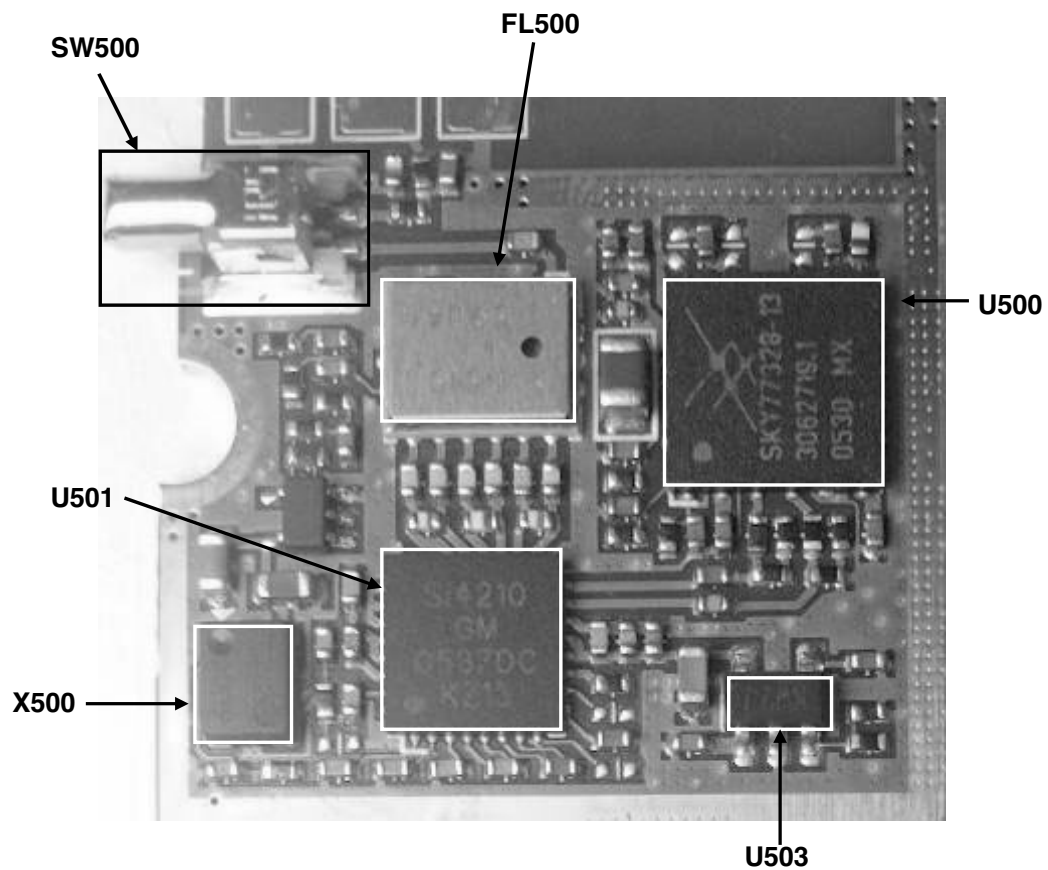


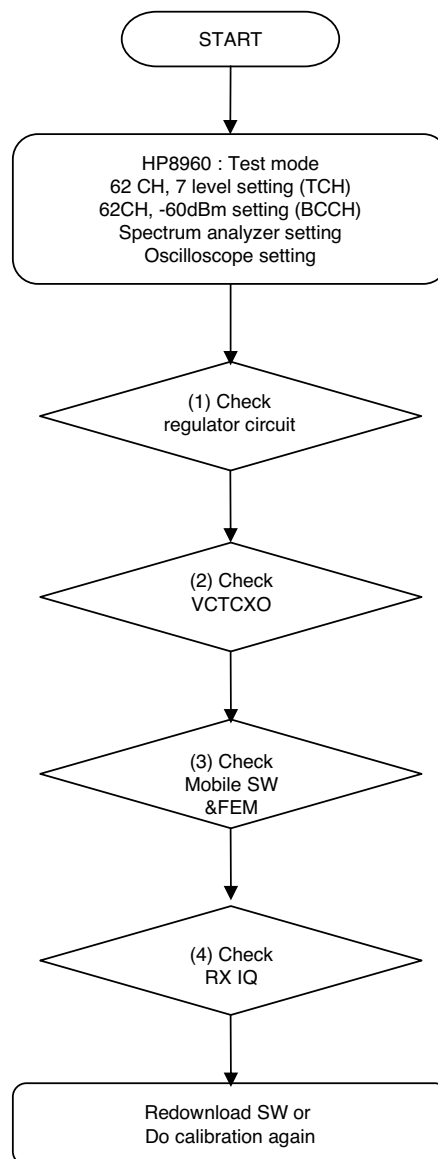
Figure 4-1

U500	Power Amp Module (SKY77328)
U501	RF Main Chip (SI4210)
U503	2.85V Regulator
X500	VCTCXO, 26MHz Clock
FL500	FEM
SW500	Mobile Switch

4. TROUBLE SHOOTING

4.2 RX Trouble

Checking Flow

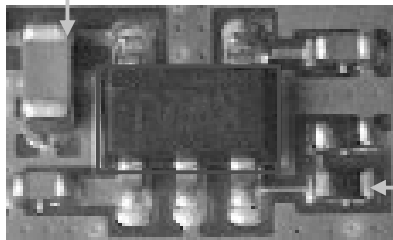


4. TROUBLE SHOOTING

(1) Checking Regulator Circuit

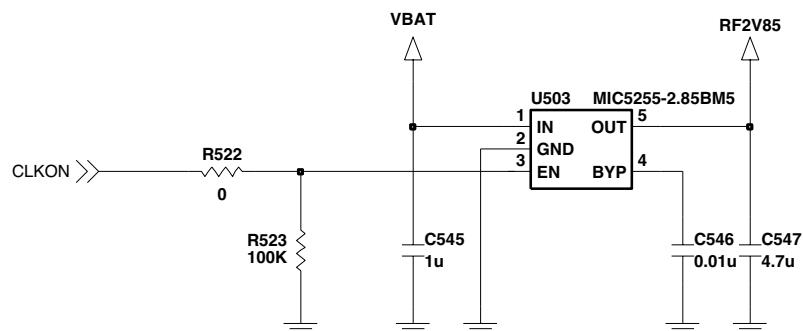
TEST POINT

U503. 5
(OUT)

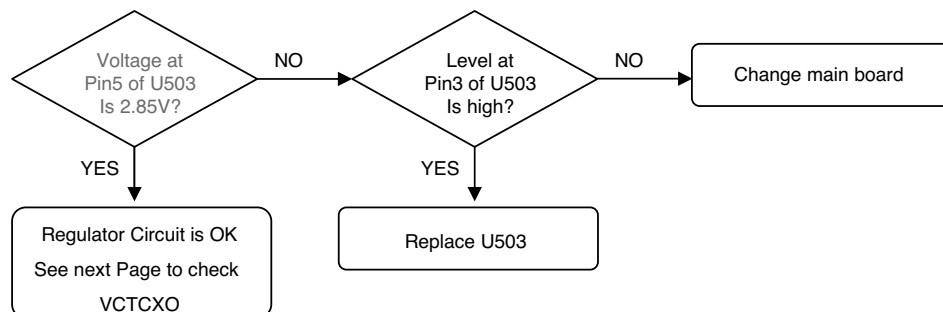


U503. 3
(EN)

CIRCUIT



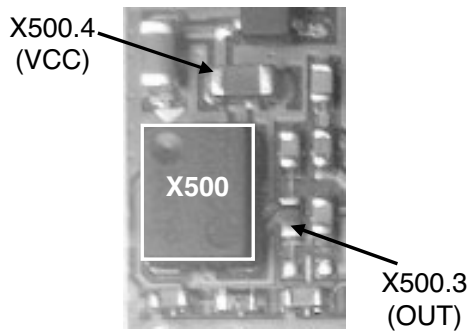
Checking Flow



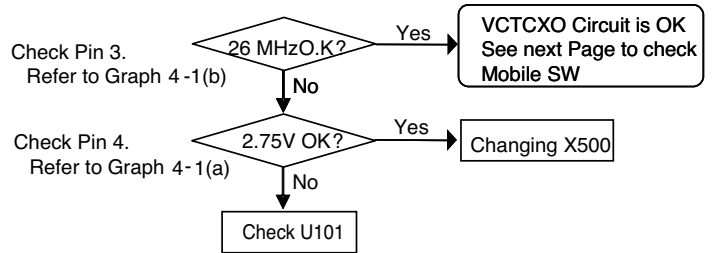
4. TROUBLE SHOOTING

(2) Checking FEM & Mobile SW

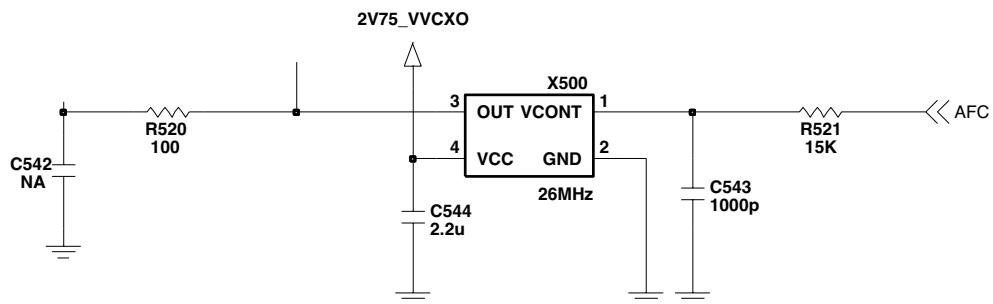
TEST POINT



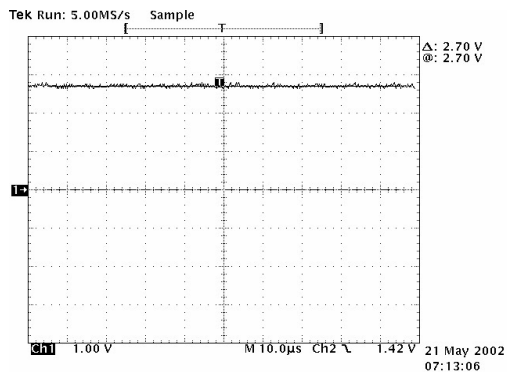
Checking Flow



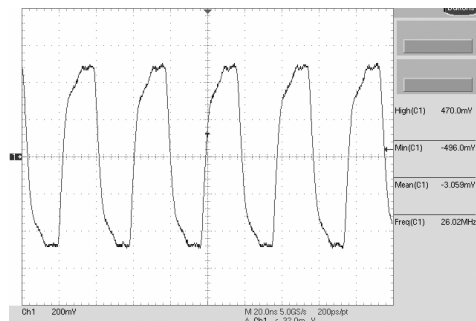
CIRCUIT



Waveform



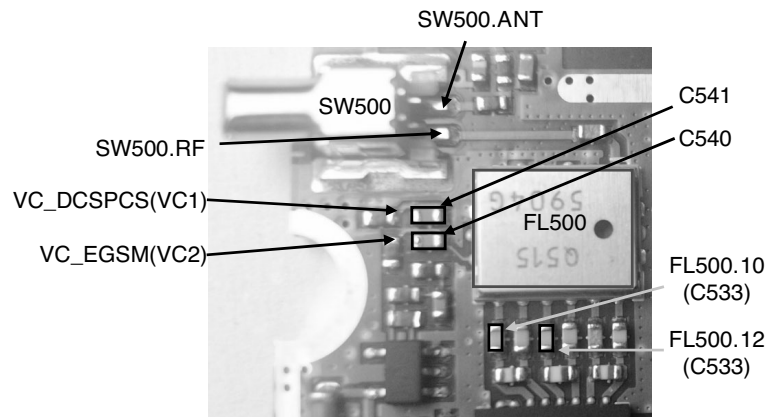
Graph 1(a)



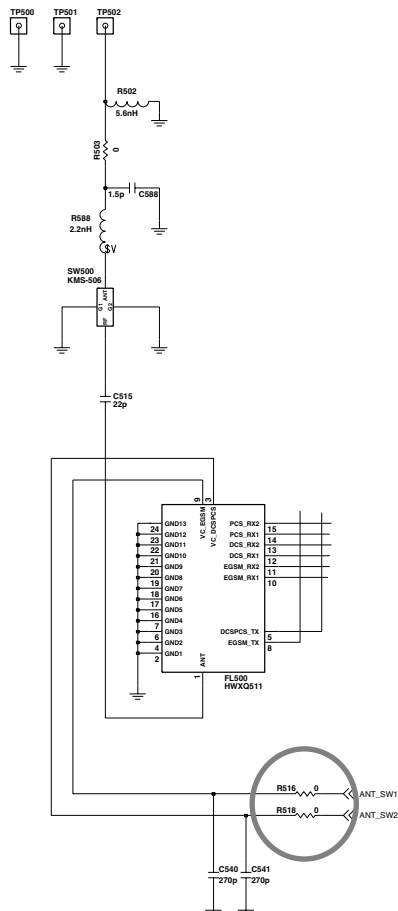
Graph 1(b)

(3) Checking Mobile SW & FEM

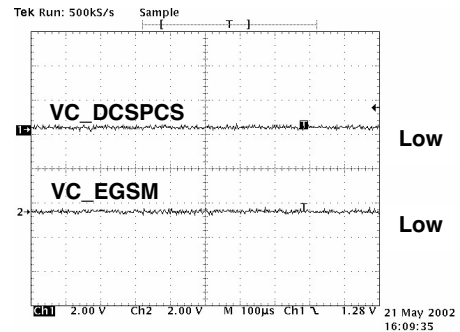
TEST POINT



CIRCUIT



Waveform



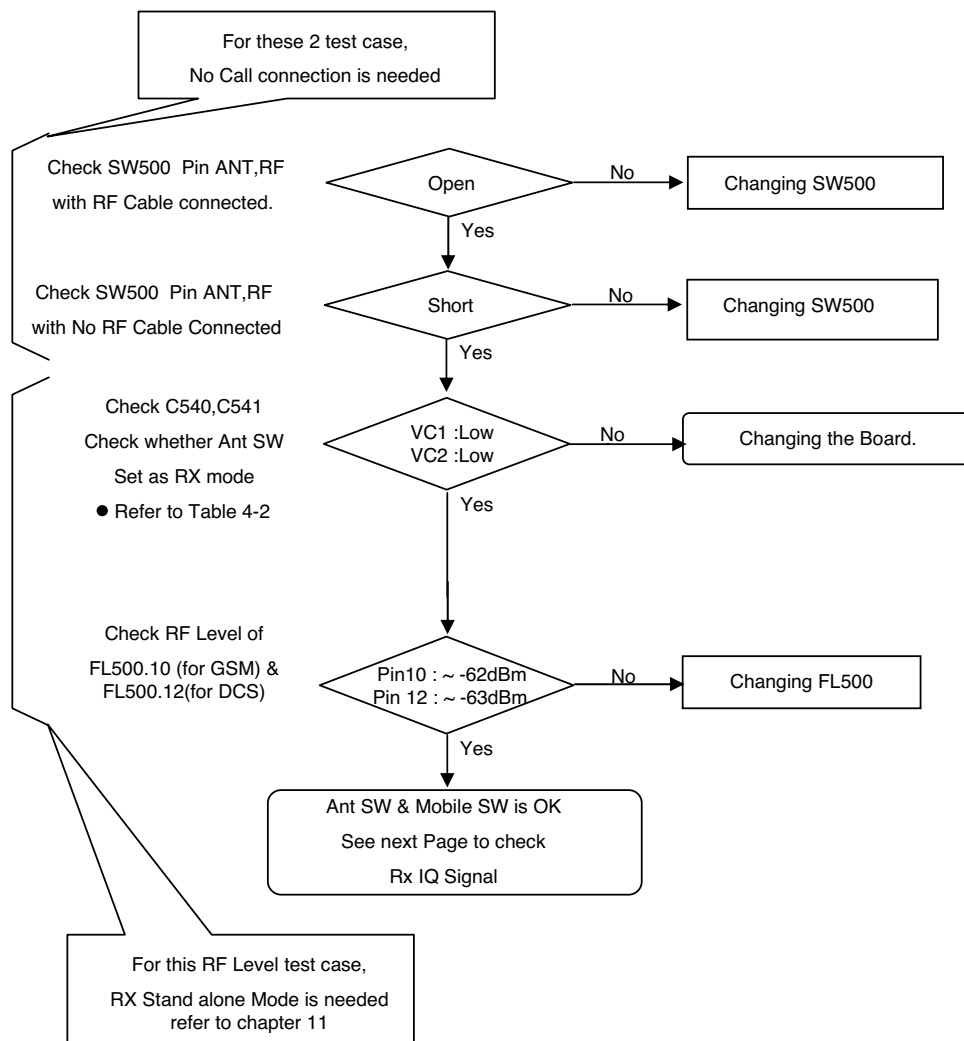
ANT SW Control GSM& DCS RX Mode Graph 2

Select Mode	Vc(EGSM)	Vc(DCS/PCS)
EGSM-Rx	LOW	LOW
EGSM-Tx	HIGH	LOW
DCS-Rx	LOW	LOW
PCS-Rx	LOW	LOW
DCS/PCS-Tx	LOW	HIGH

Table 1

4. TROUBLE SHOOTING

Checking Flow



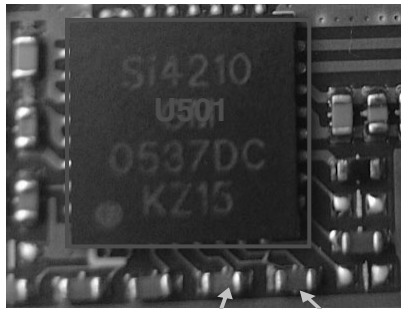
	ANT_SW1	ANT_SW2
GSM_TX	HIGH	LOW
DCS_TX	LOW	HIGH
RX	LOW	LOW

Table 4-2

4. TROUBLE SHOOTING

(4) Checking RX IQ

TEST POINT

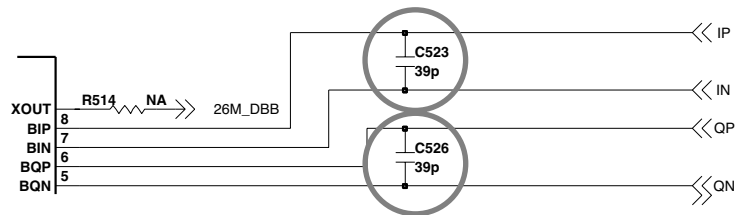


C526

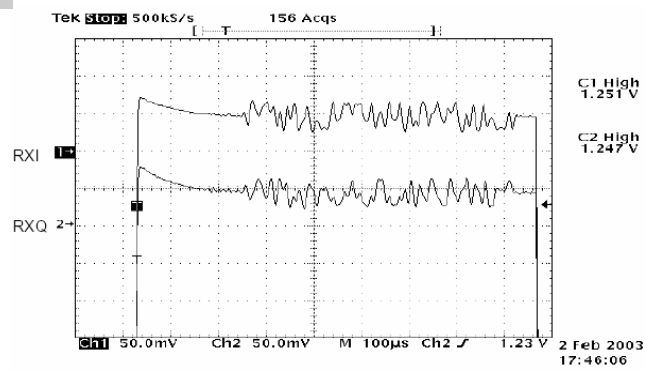
C523

Figure 5

CIRCUIT

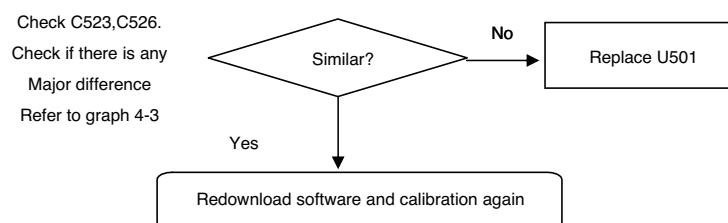


Waveform



Graph 3

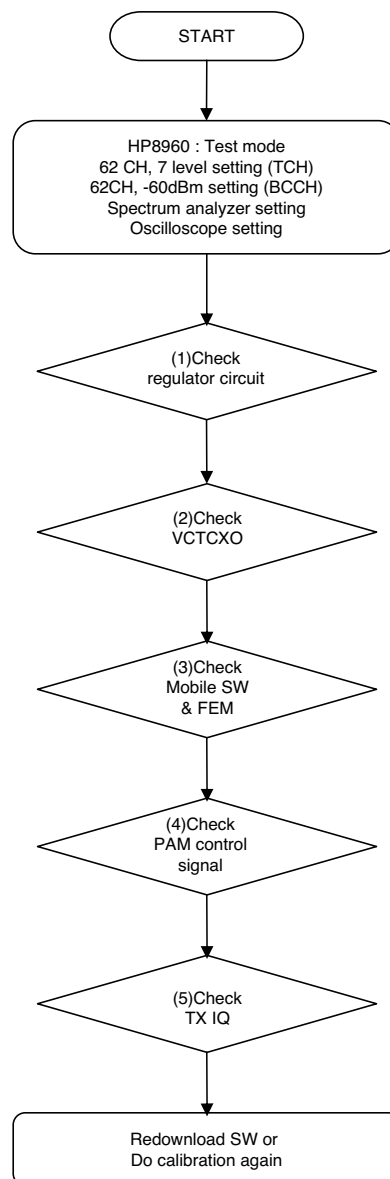
Checking Flow



4. TROUBLE SHOOTING

4.3 TX Trouble

Checking Flow



(1) Checking Regulator Circuit

TEST POINT

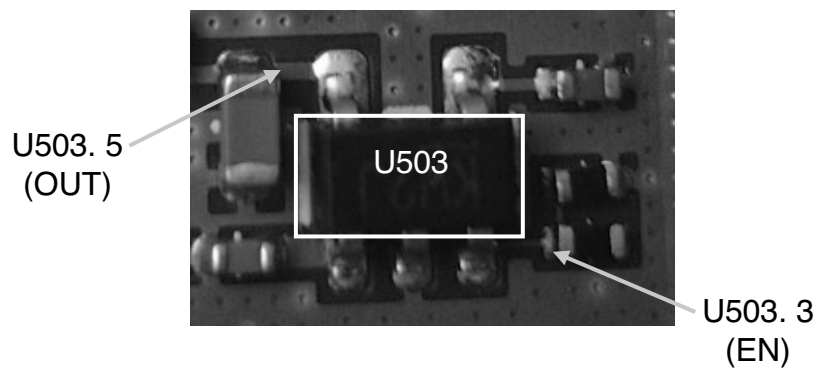
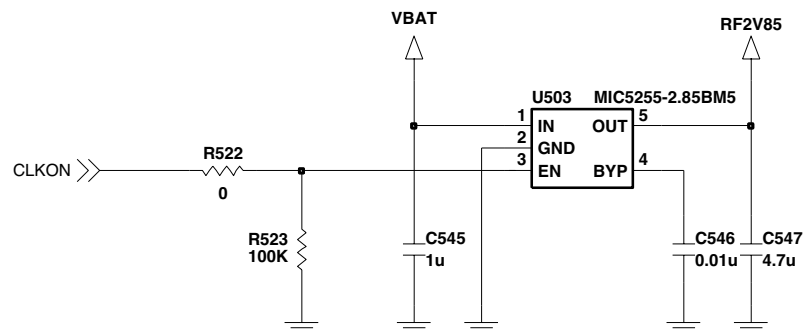
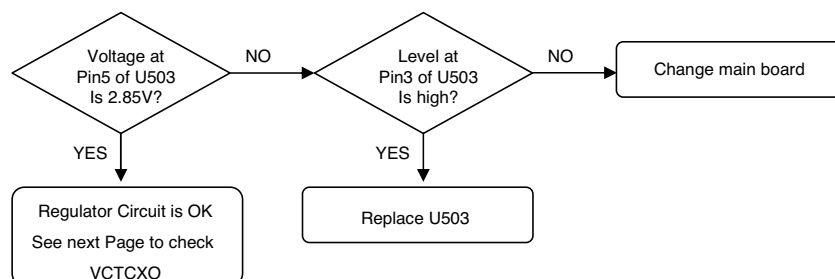


Figure 6

CIRCUIT



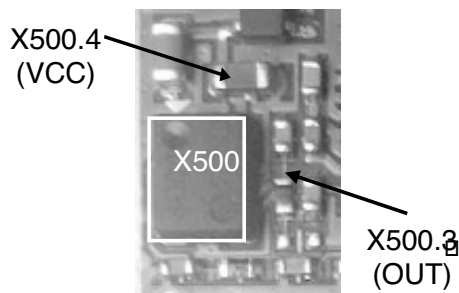
Checking Flow



4. TROUBLE SHOOTING

(2) Checking VCTCXO Circuit

TEST POINT



Checking Flow

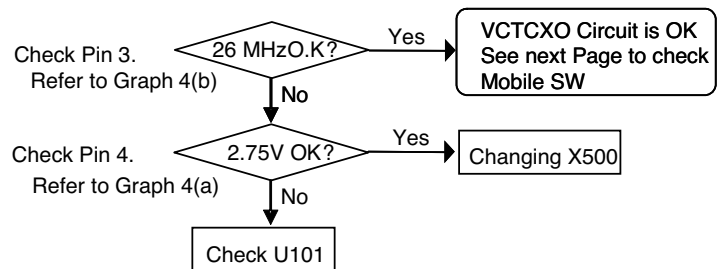
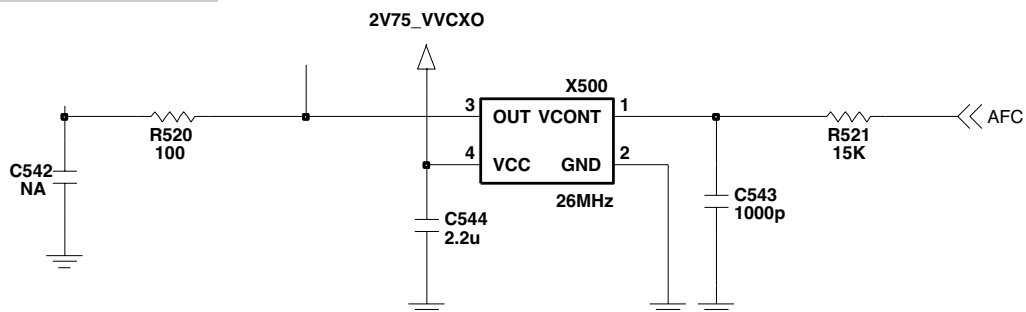
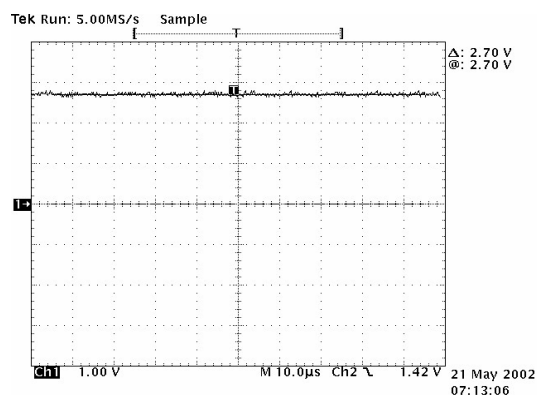


Figure 7

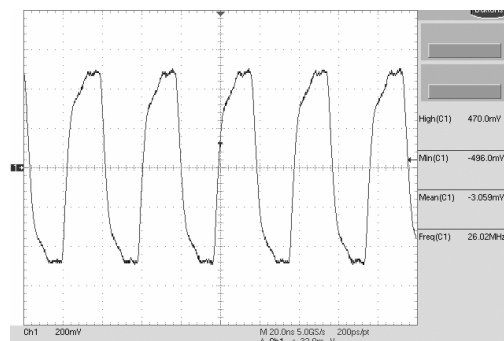
CIRCUIT



Waveform



Graph 4(a)



Graph 4(b)

4. TROUBLE SHOOTING

(3) Checking Mobile SW & FEM

TEST POINT

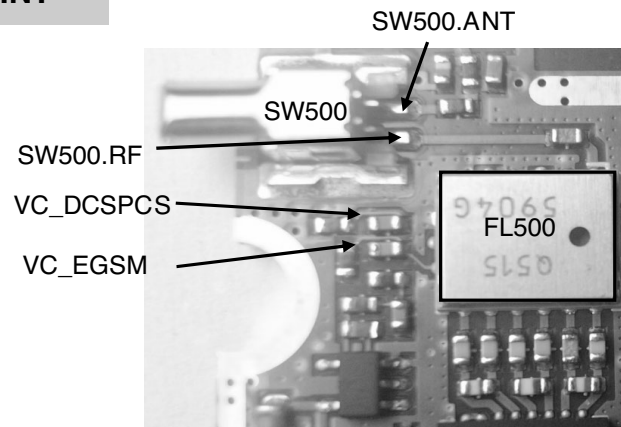
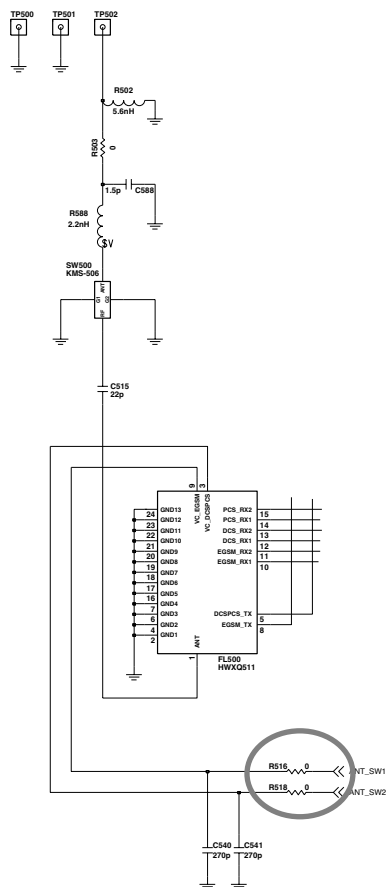
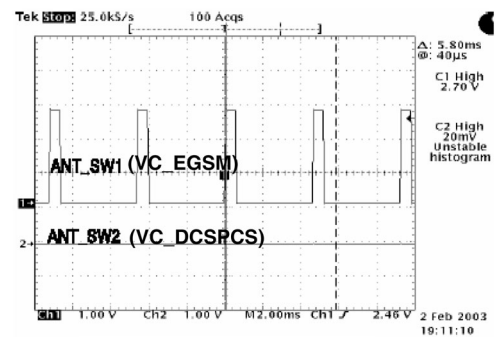


Figure 8

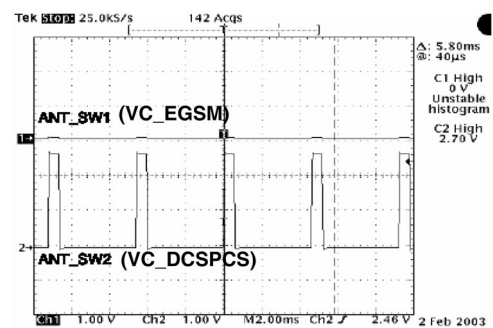
CIRCUIT



Waveform



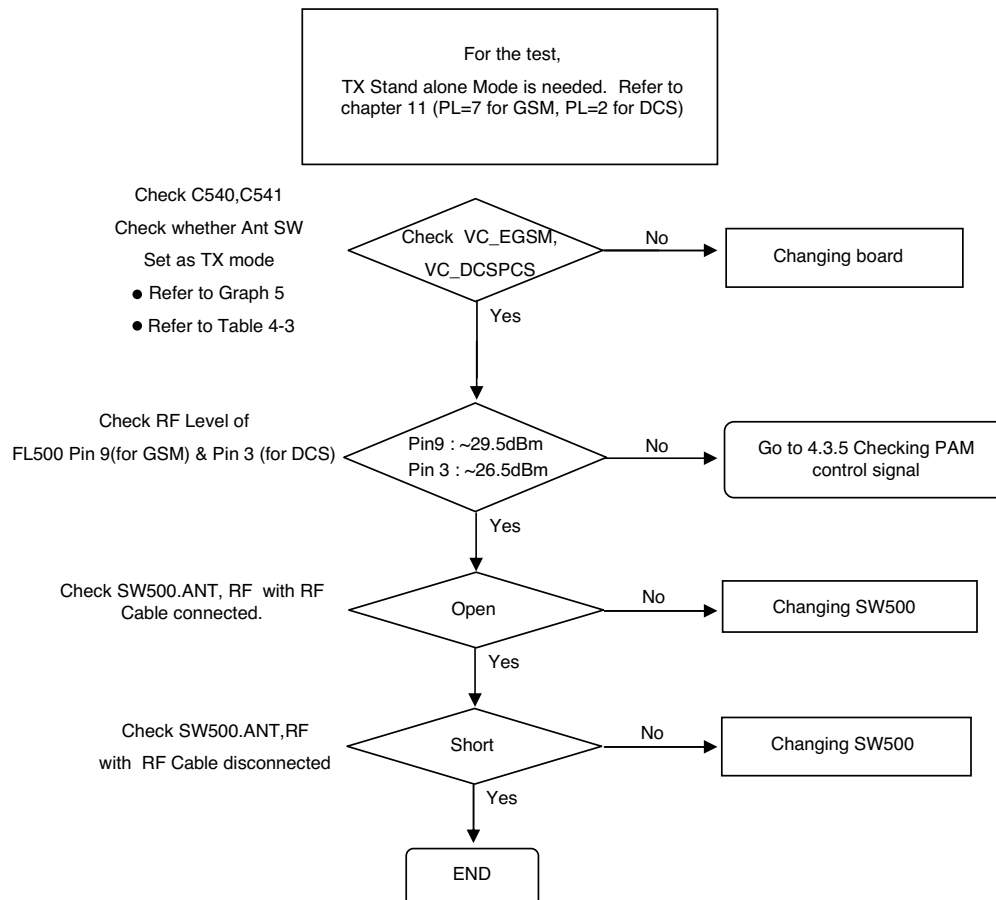
Graph 5(a) GSM Tx mode



Graph 5(b) DCS,PCS Tx mode

4. TROUBLE SHOOTING

Checking Flow



ANT SW	VC_EGSM	VC_CDSPCS
DCS_TX	0	1
EGSM TX	1	0
EGSM, DCS RX	0	0

Table 4-3

TEST POINT

CIRCUIT



Checking Flow



4. TROUBLE SHOOTING

(5) Checking TX IQ

TEST POINT

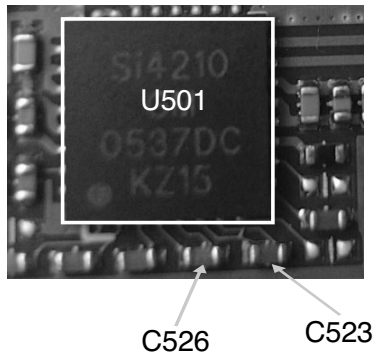
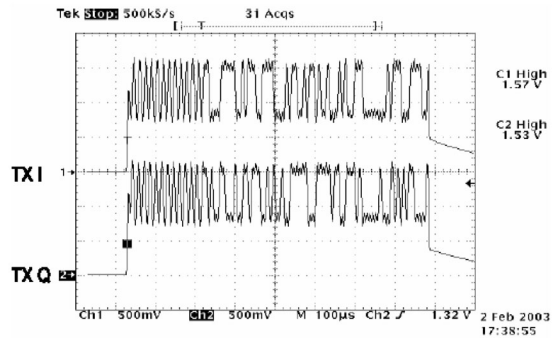


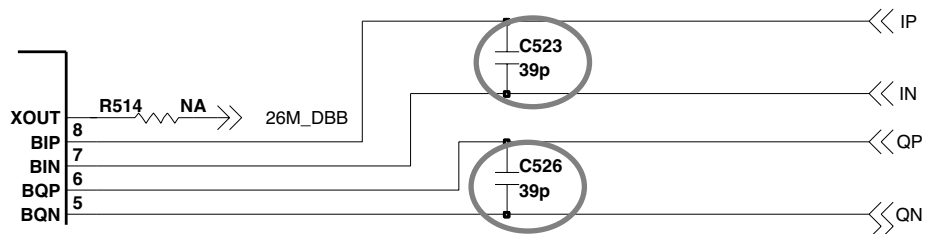
Figure 10

Waveform

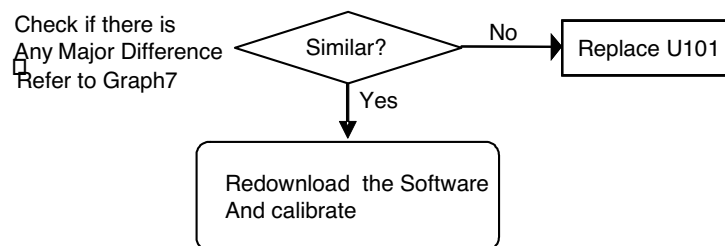


Graph 7

CIRCUIT



Checking Flow



4.4 Power On Trouble

TEST POINT

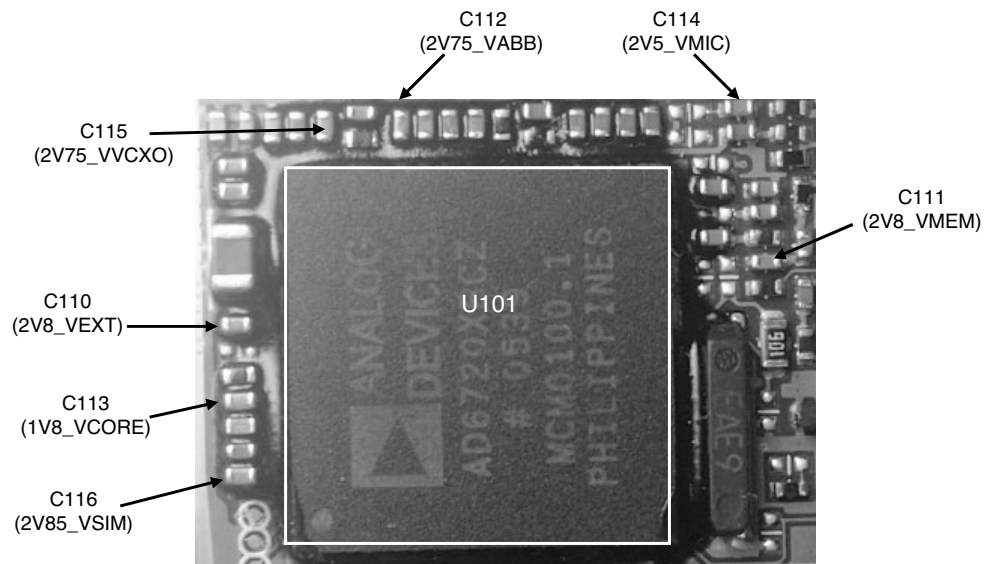
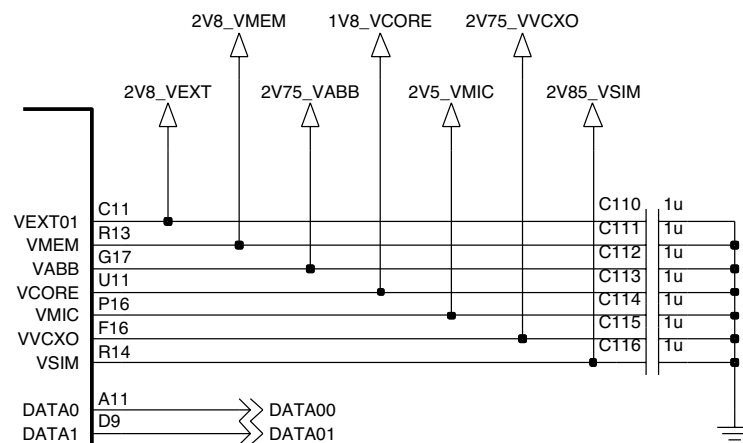


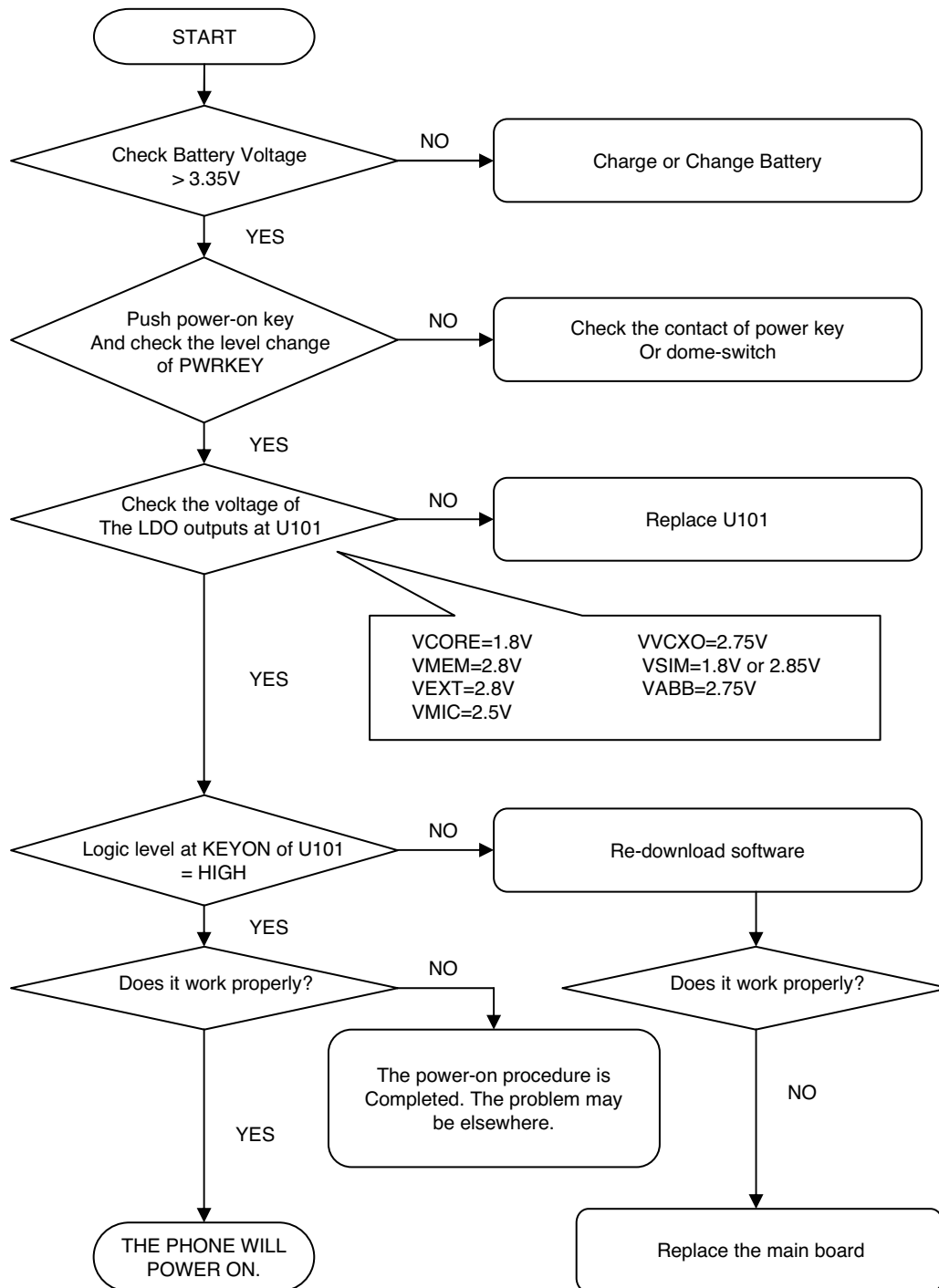
Figure 11

CIRCUIT



4. TROUBLE SHOOTING

Checking Flow



4.5 Charging Trouble

TEST POINT

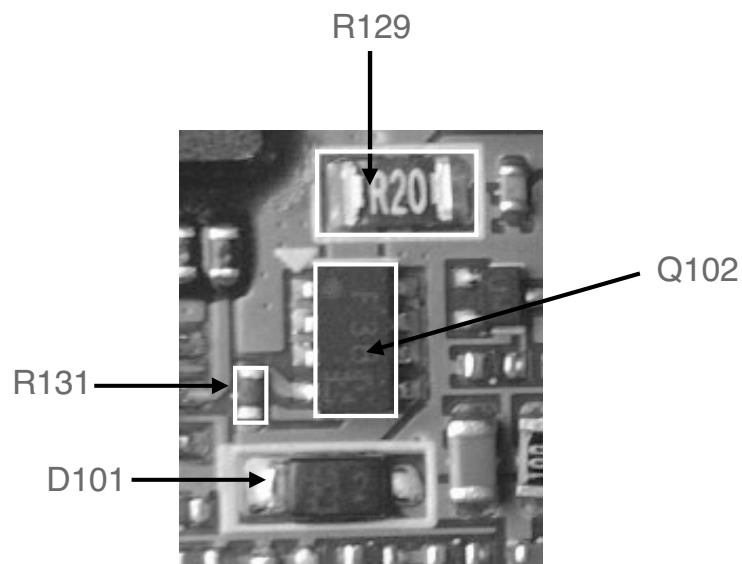
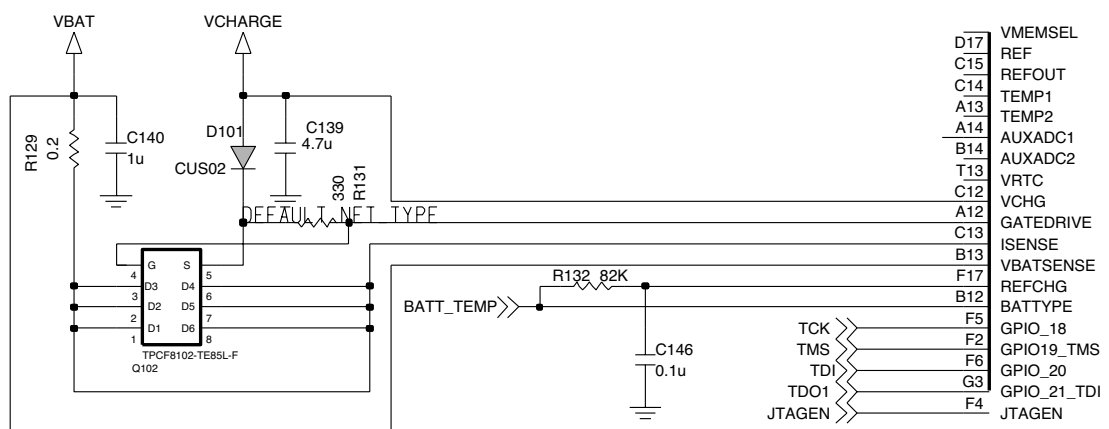


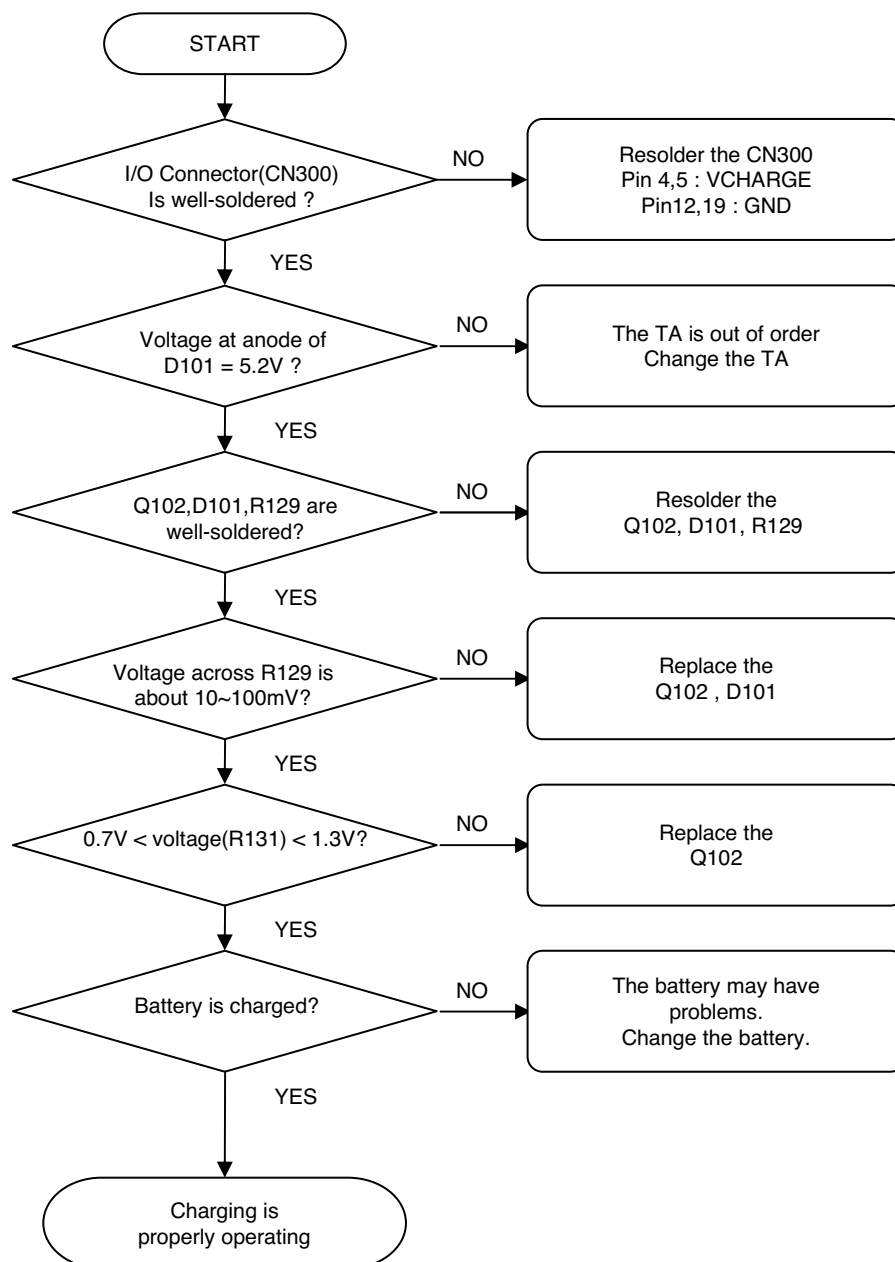
Figure 12

CIRCUIT



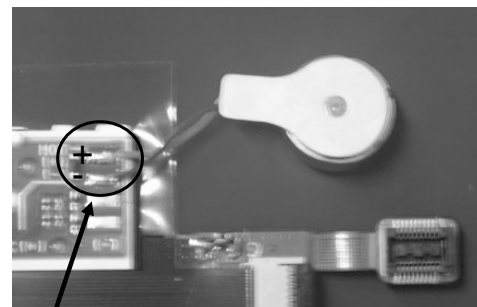
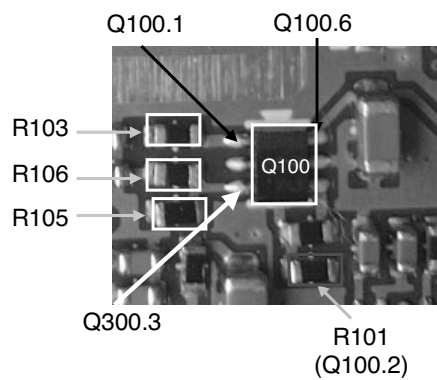
4. TROUBLE SHOOTING

Checking Flow



4.6 Vibrator Trouble

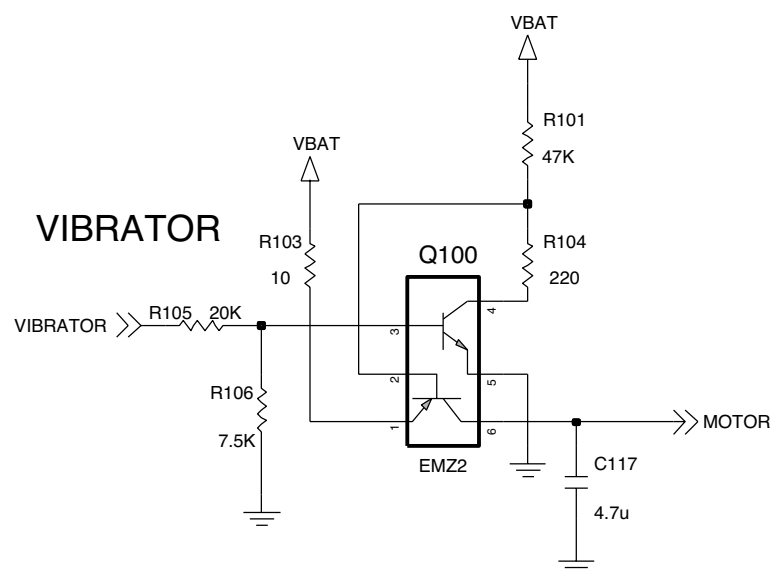
TEST POINT



Soldering C heck in LC D Module

Figure 13

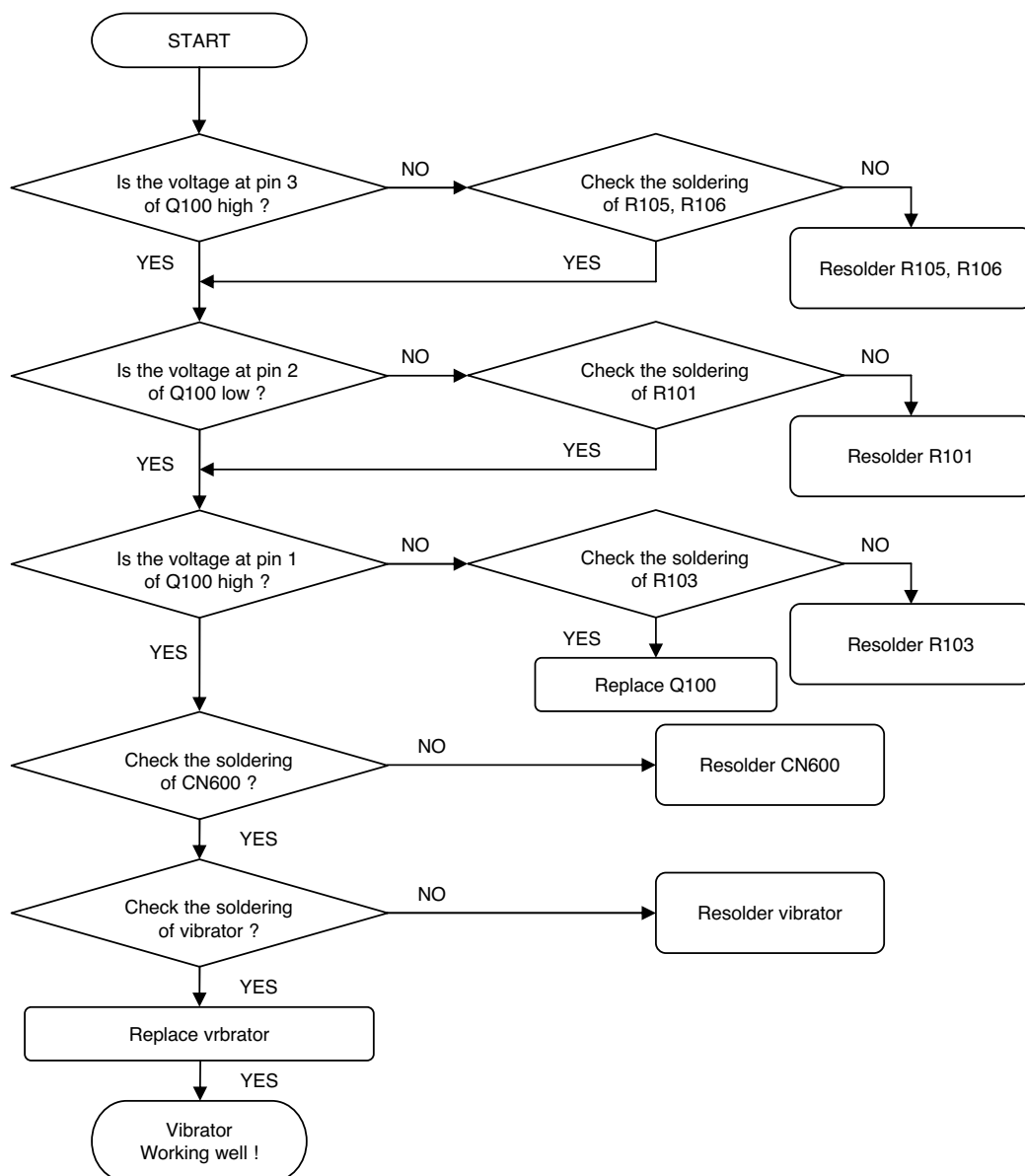
CIRCUIT



4. TROUBLE SHOOTING

Checking Flow

SETTING : Enter the engineering mode, and set vibrator on at vibration of BB test menu



4.7 LCD Trouble

TEST POINT

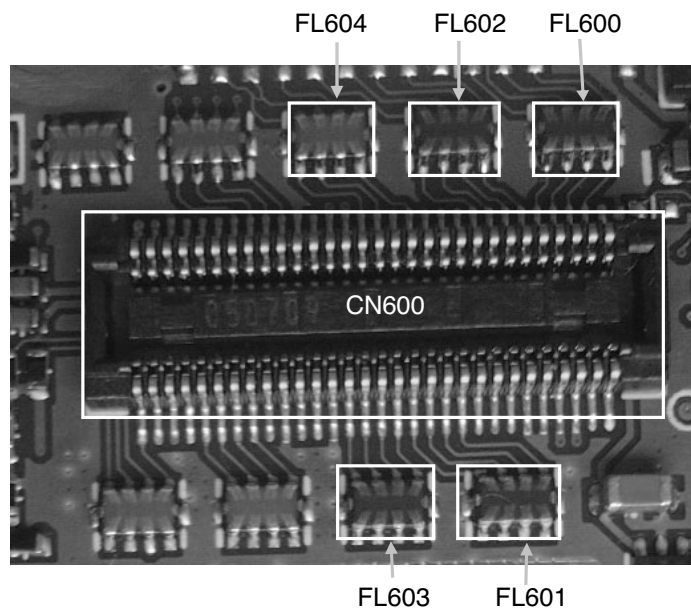


Figure 14

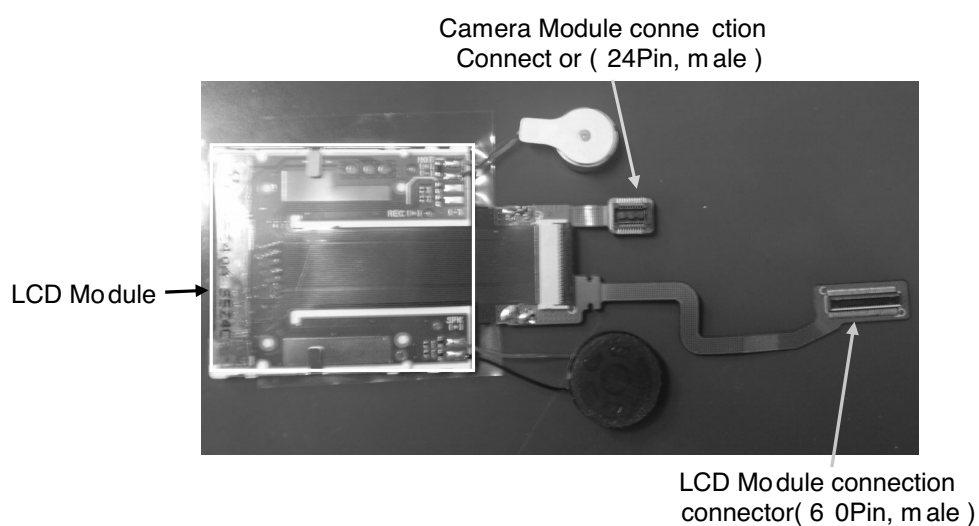
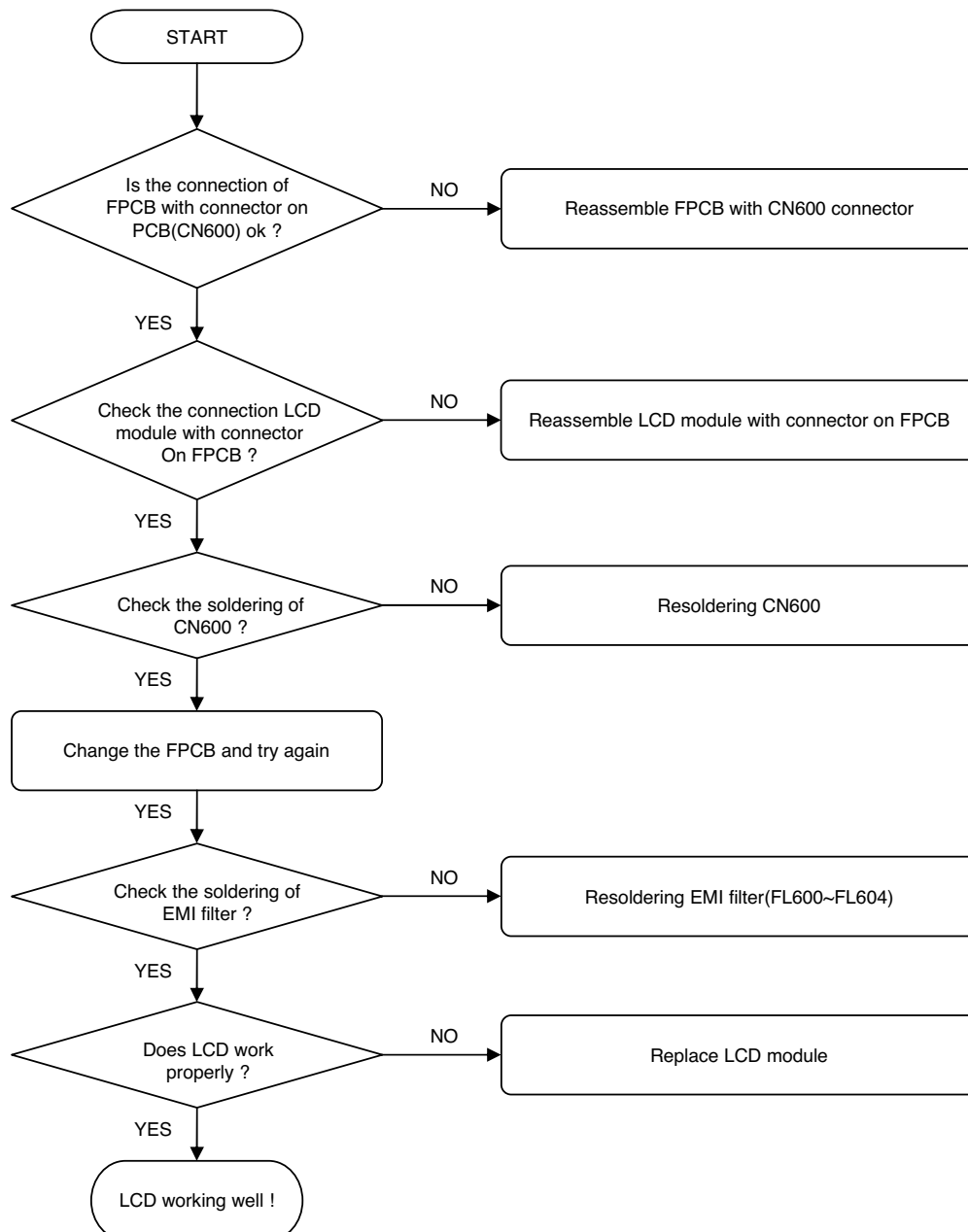


Figure 15

4. TROUBLE SHOOTING

Checking Flow



4.8 Camera Trouble

TEST POINT

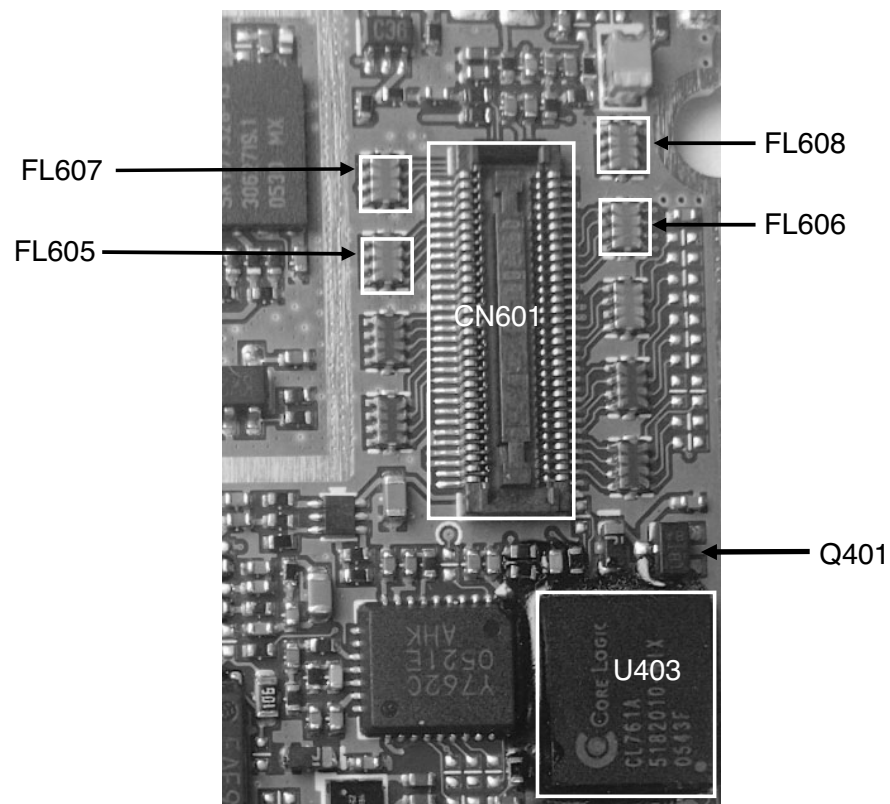


Figure 16

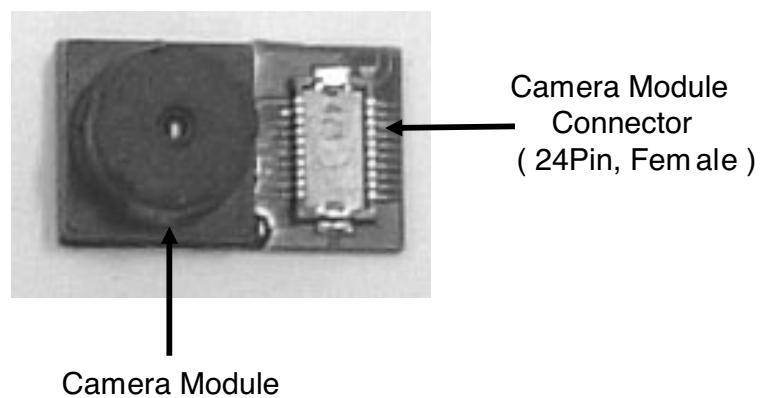
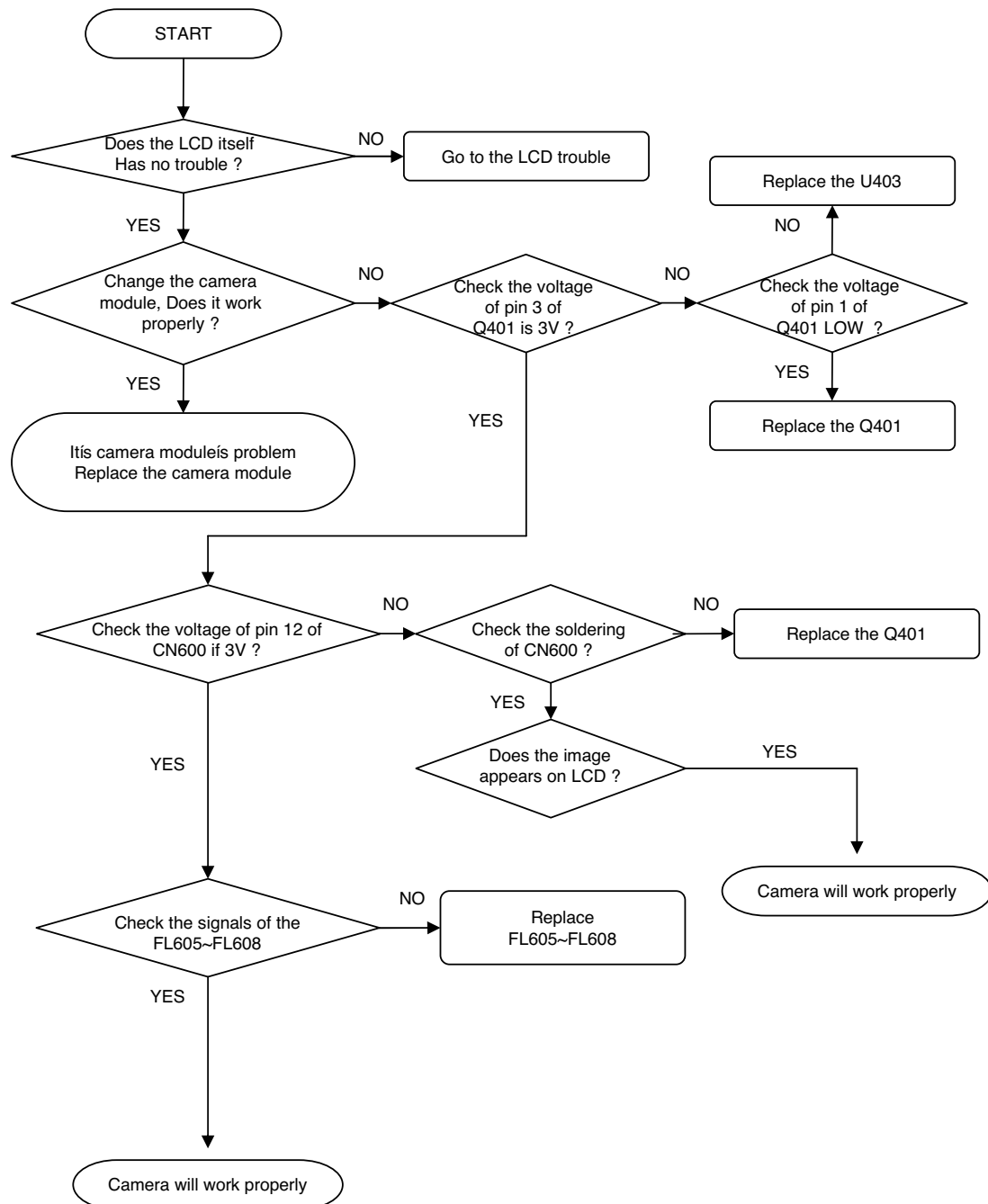


Figure 17

4. TROUBLE SHOOTING

Checking Flow



4.9 Speaker Trouble

TEST POINT

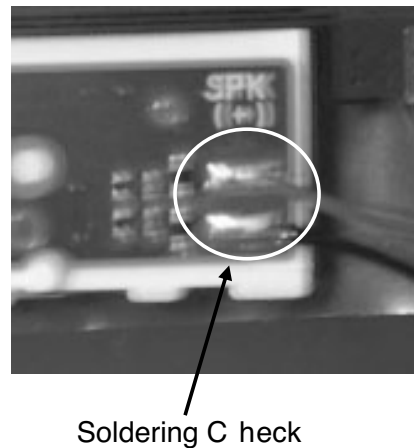
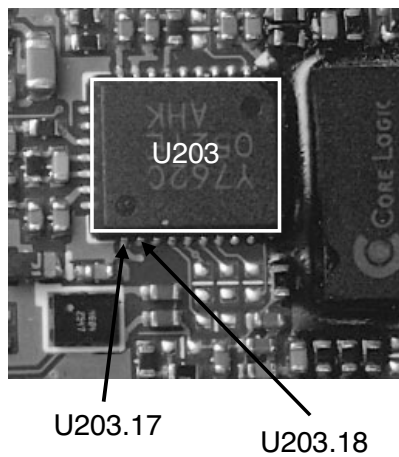
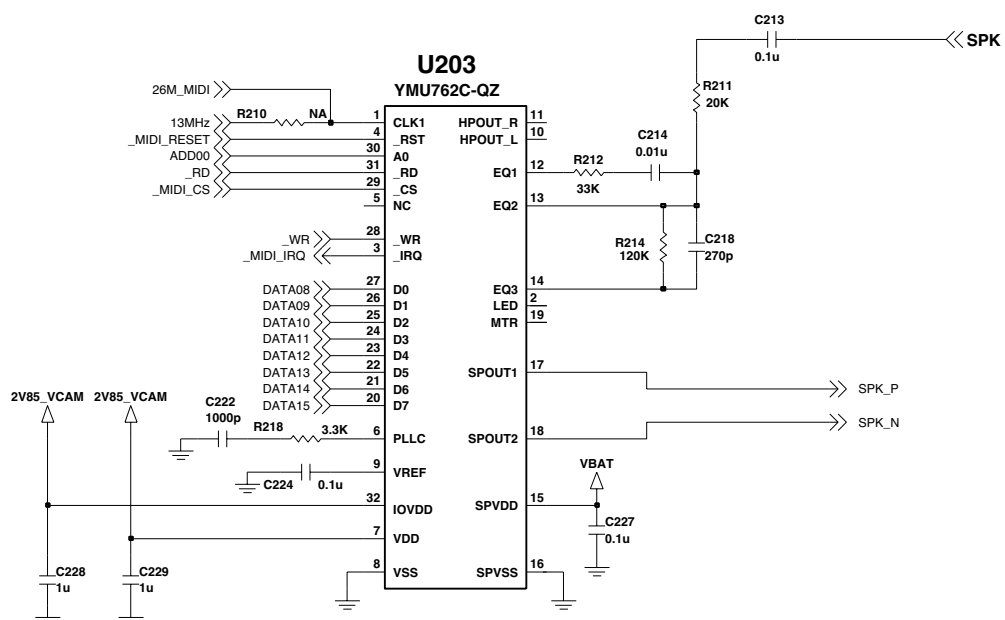


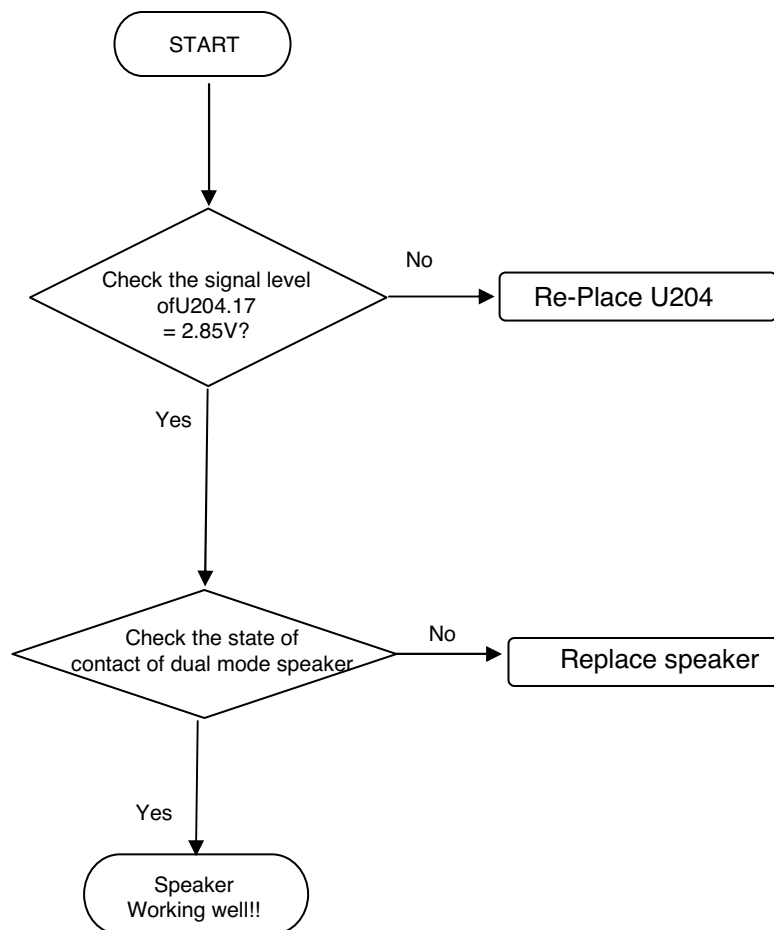
Figure 18

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.10 SIM Card Interface Trouble

TEST POINT

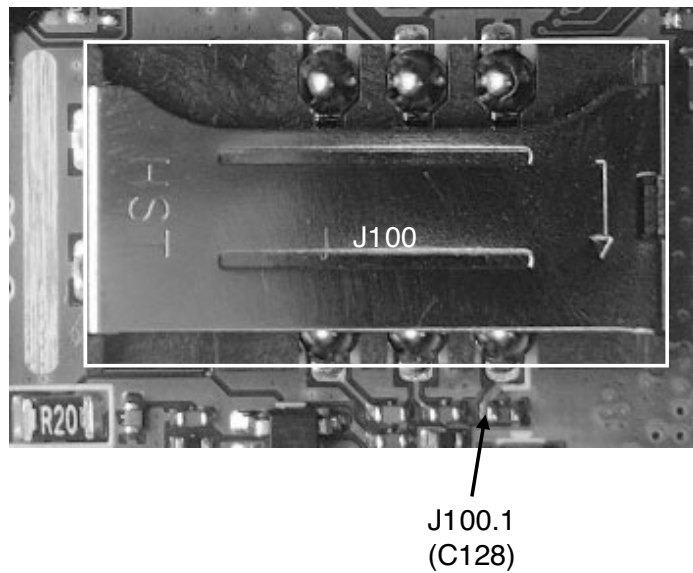
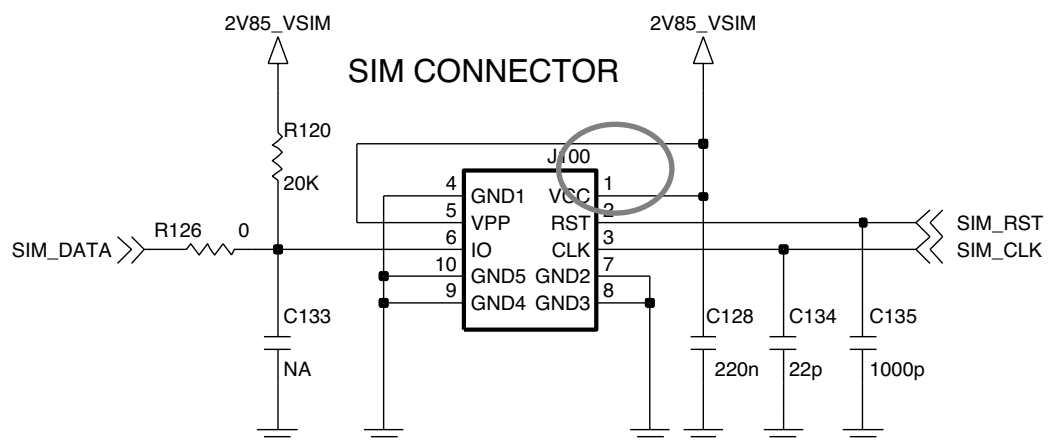


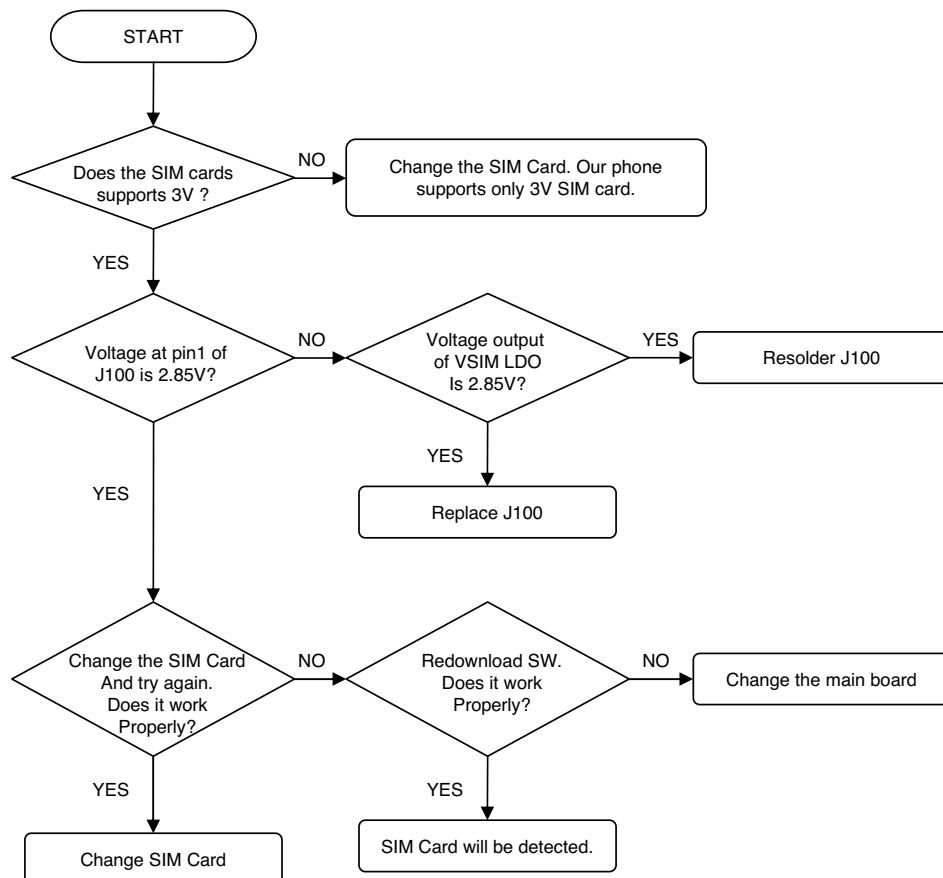
Figure 19

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.11 Earphone Trouble

TEST POINT

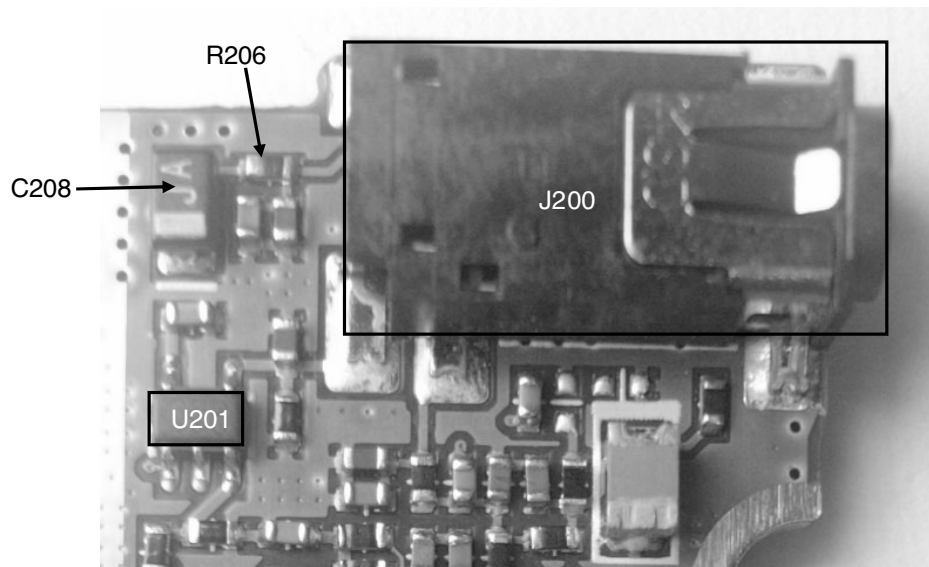
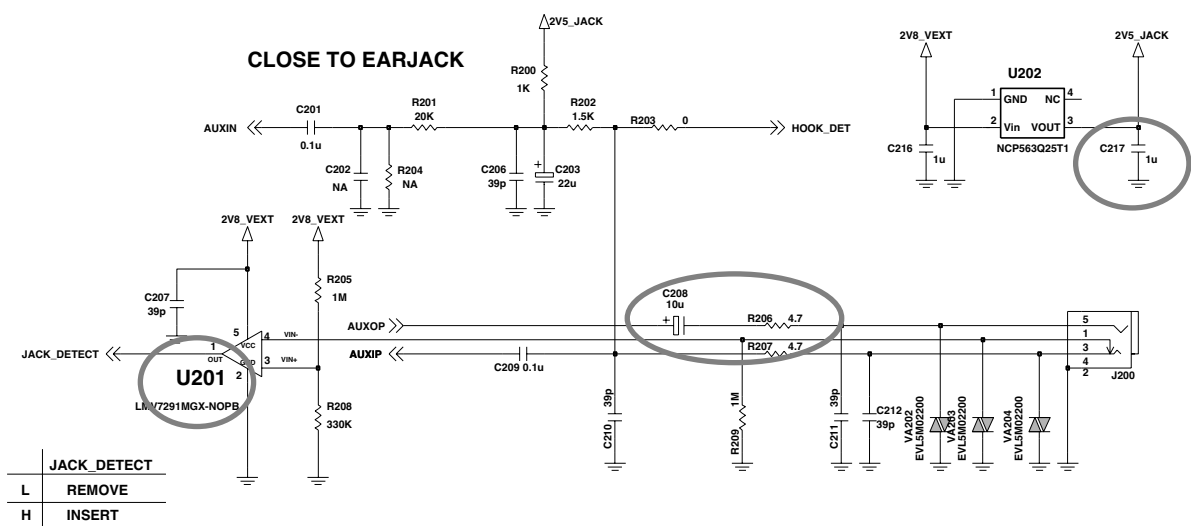


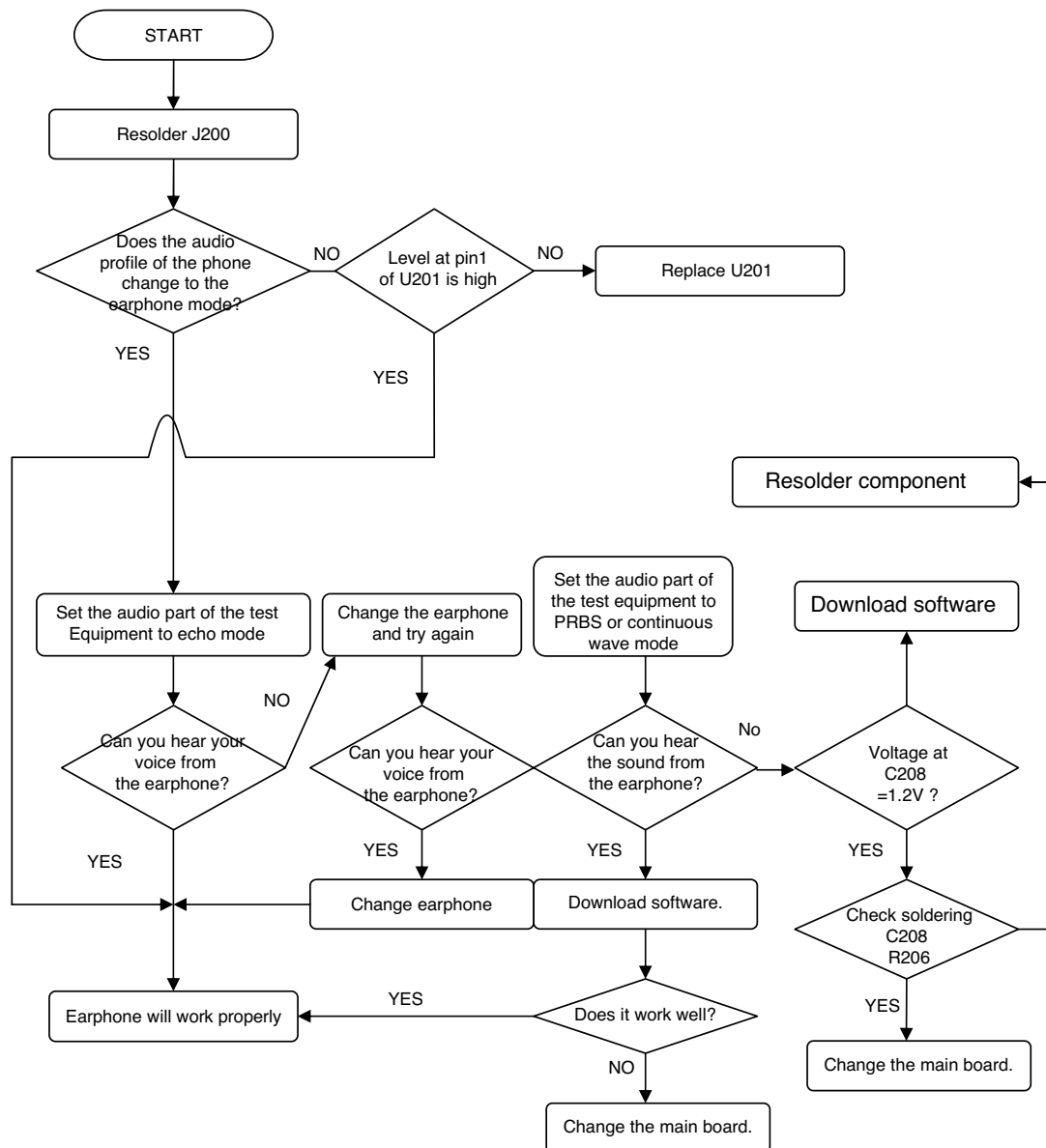
Figure 20

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.12 KEY backlight Trouble

TEST POINT

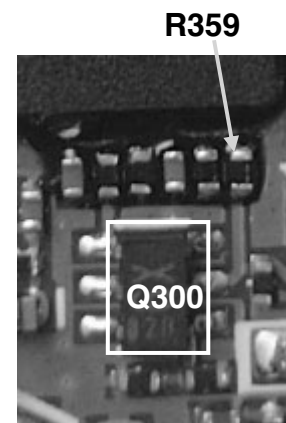
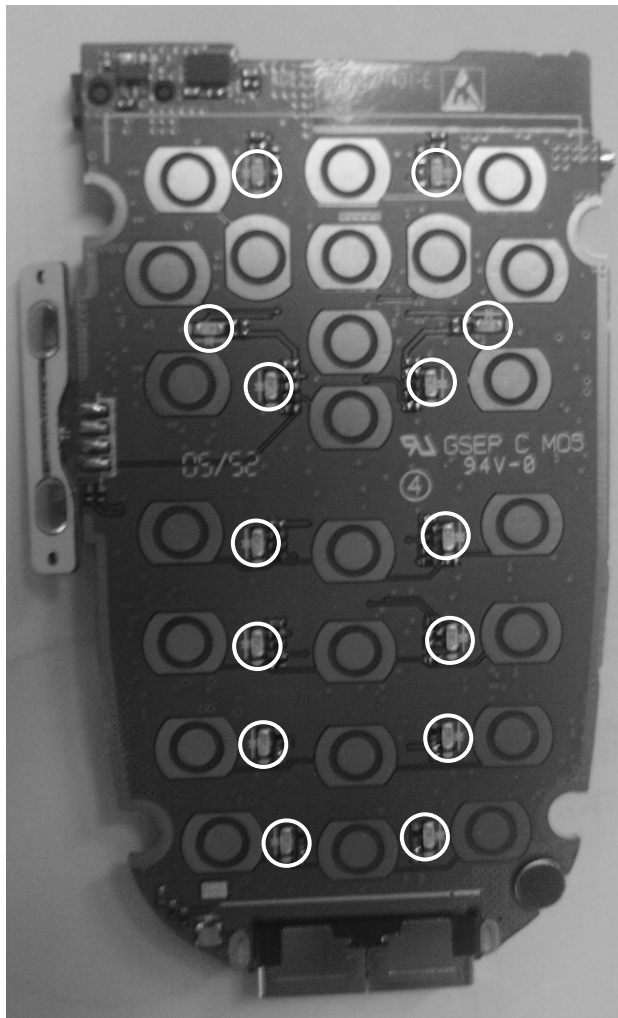
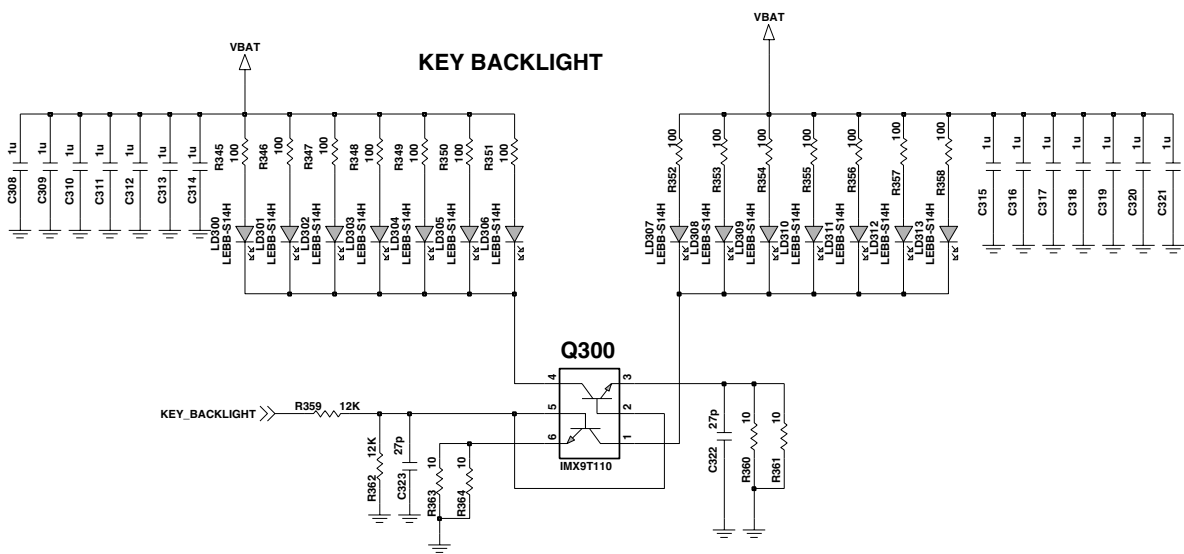


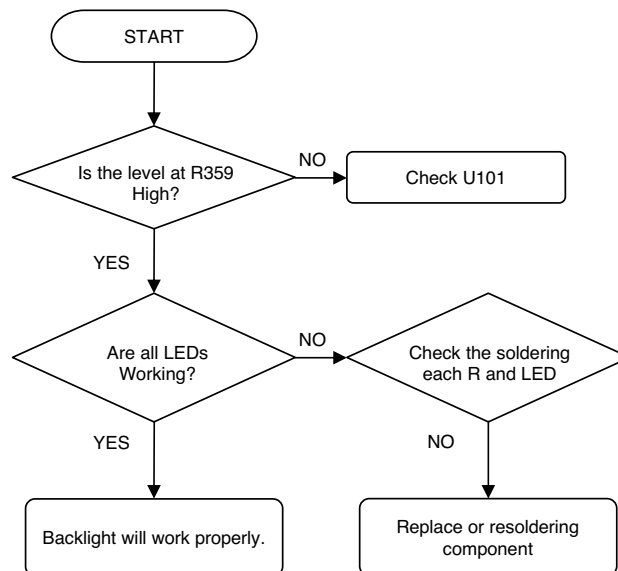
Figure 21

4. TROUBLE SHOOTING

CIRCUIT



Checking Flow



4.13 Receiver Trouble

TEST POINT

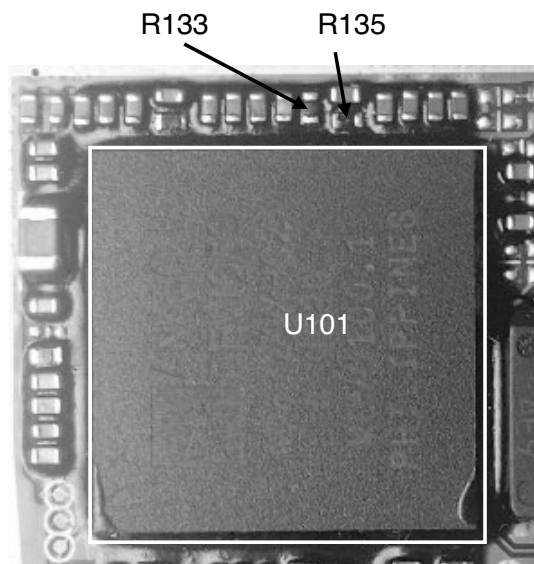
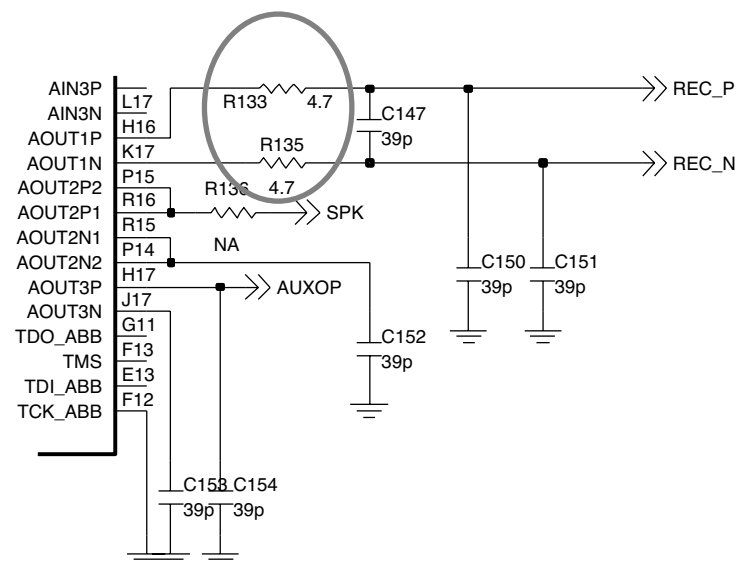


Figure 22

CIRCUIT DIAGRAM

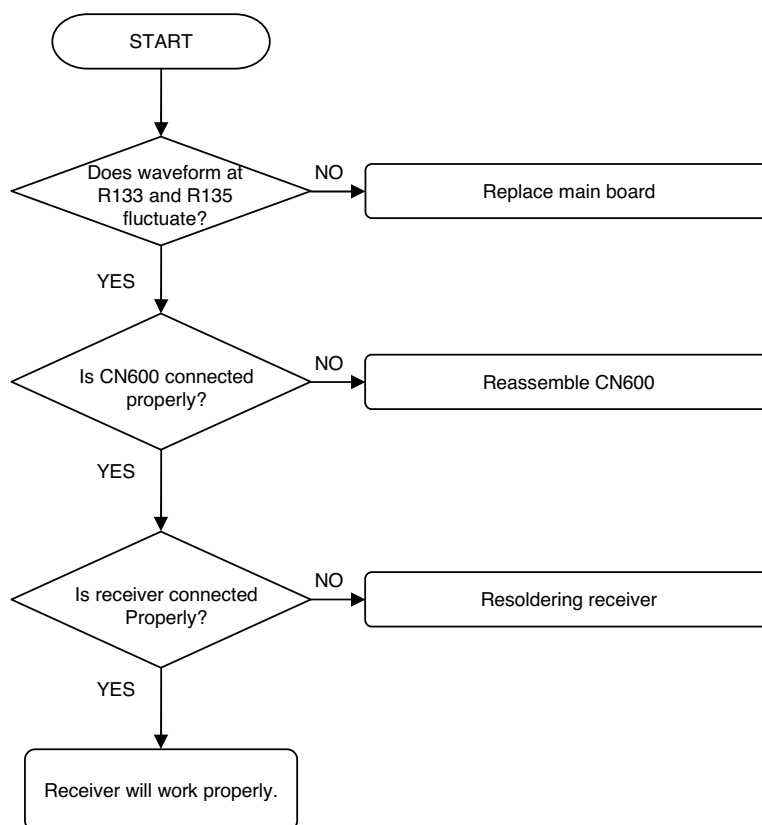


4. TROUBLE SHOOTING

Checking Flow

SETTING : After initialize Agilent 8960, Test EGSM, DCS mode

Set the property of audio as PRBS or continuous wave. Set the receiving volume of mobile as Max.



4.14 Microphone Trouble

TEST POINT

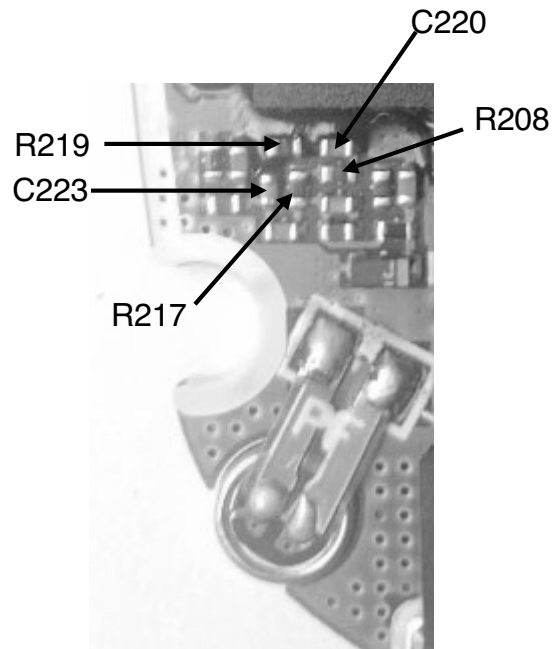
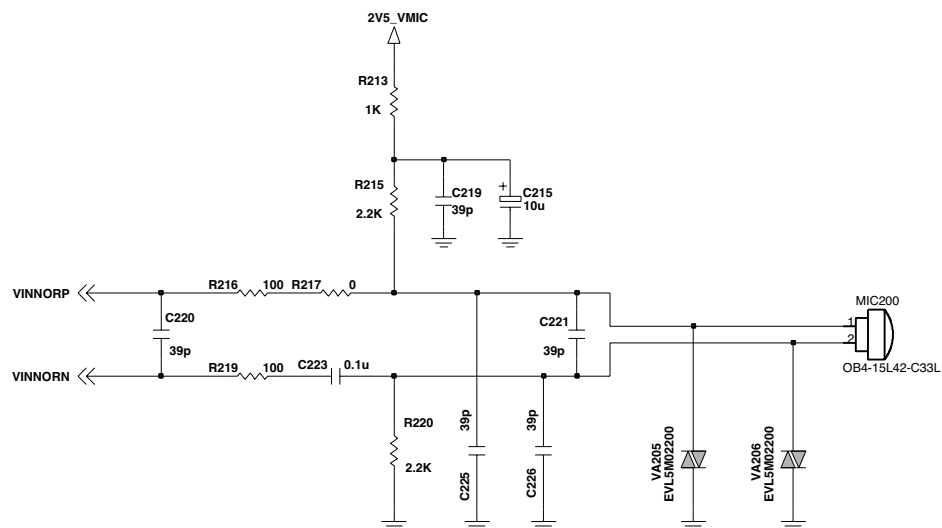


Figure 23

CIRCUIT DIAGRAM

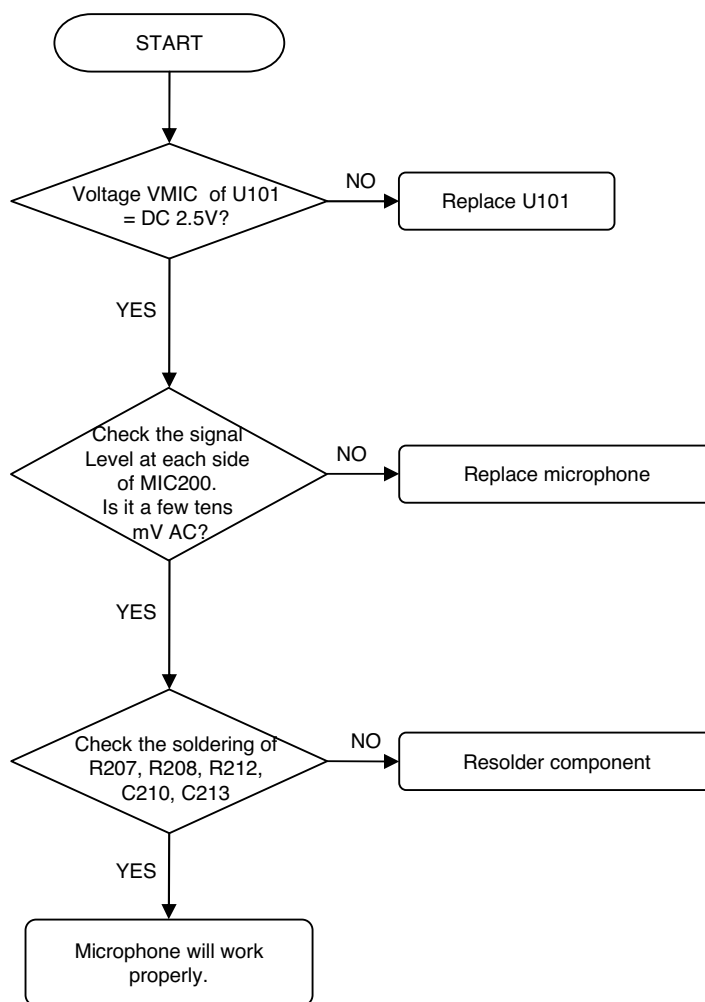


CLOSE TO MIC

4. TROUBLE SHOOTING

Checking Flow

SETTING : After initialize Agilent 8960, Test EGSM, DCS mode



4.15 RTC Trouble

TEST POINT

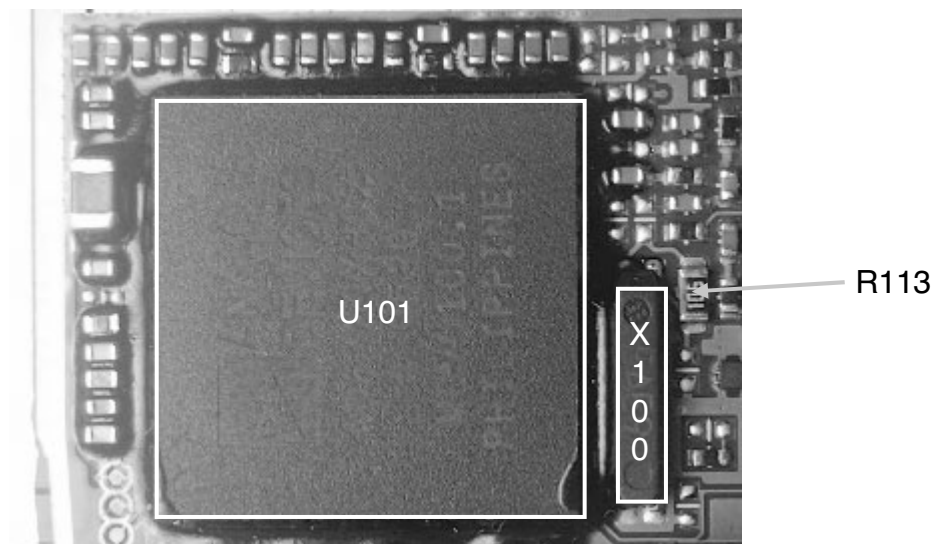
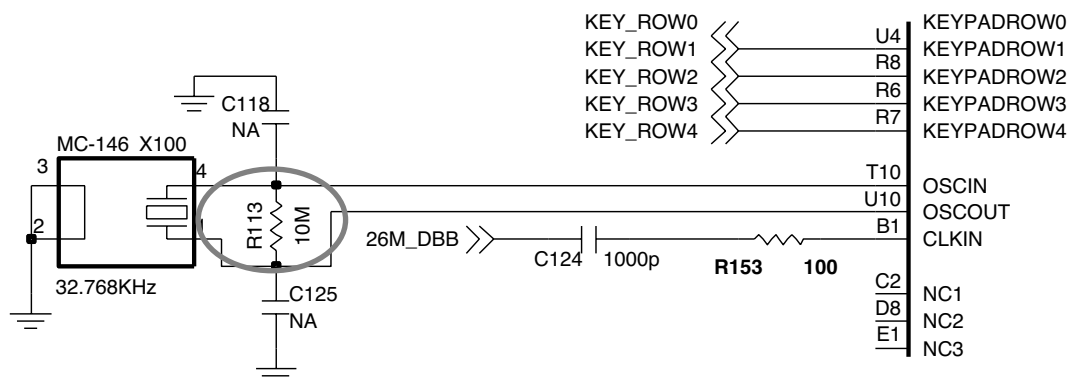


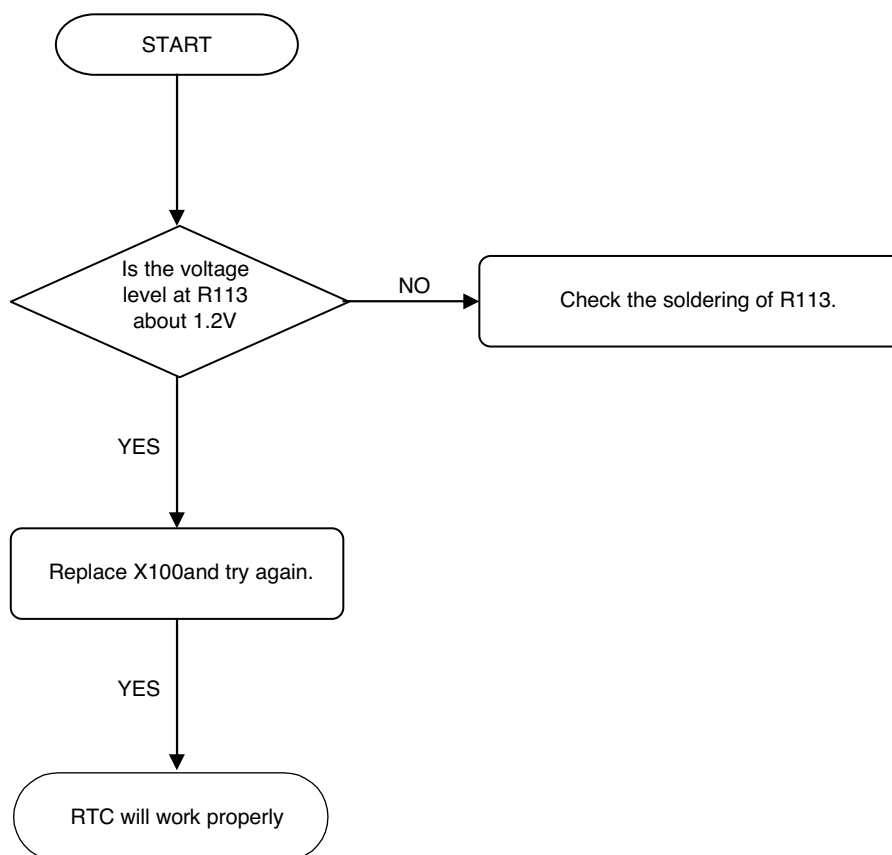
Figure 24

CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

Checking Flow



4.16 Indication LED Trouble

TEST POINT

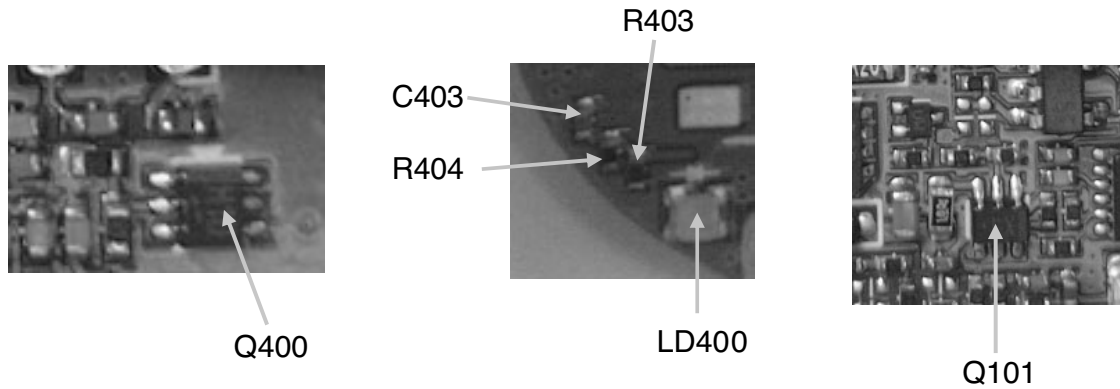
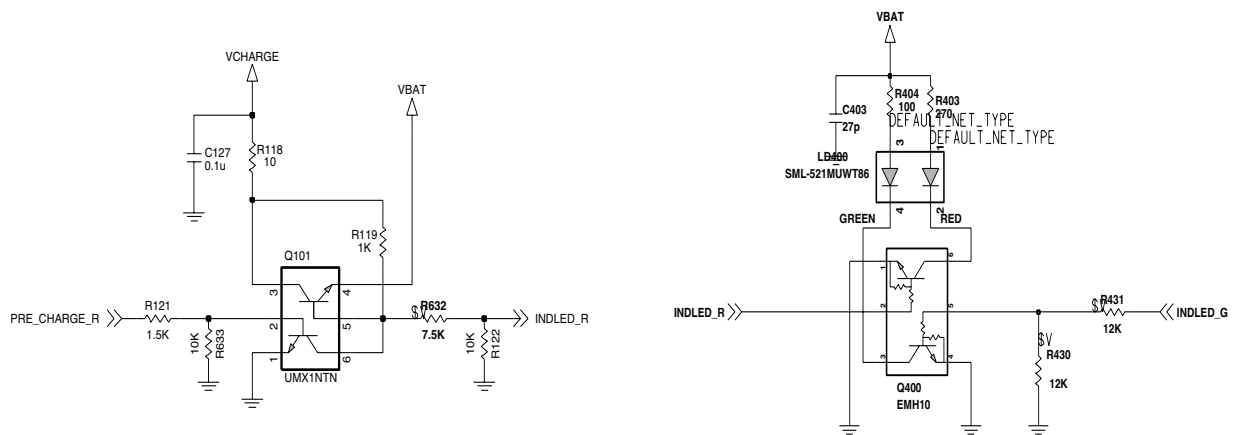


Figure 25

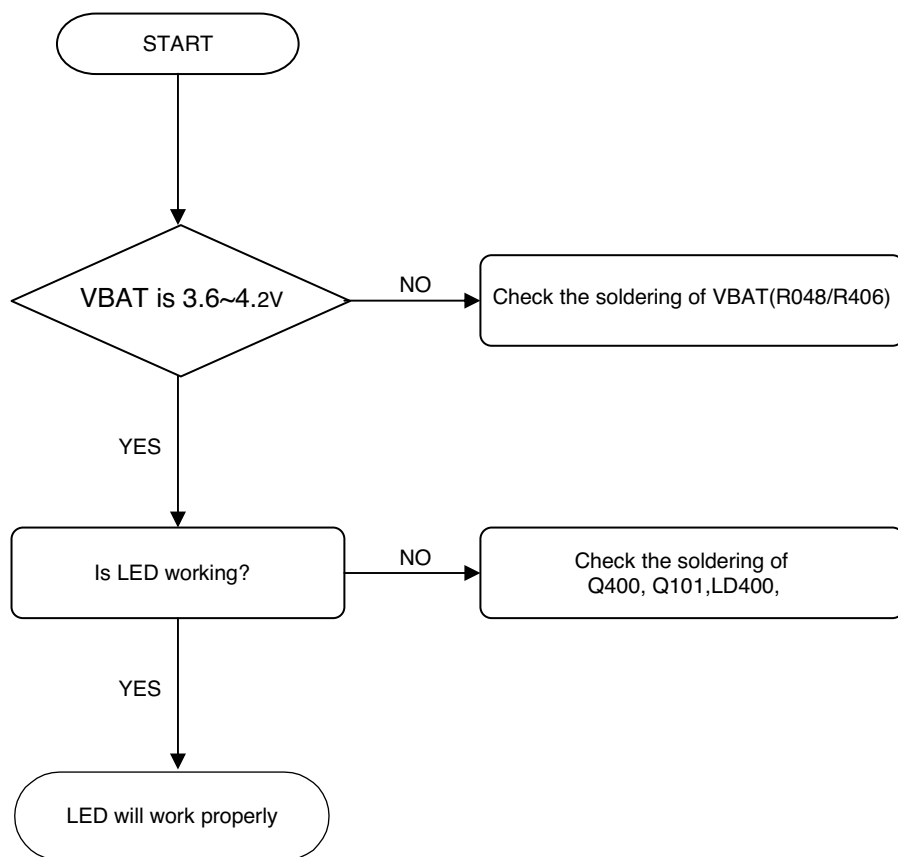
CIRCUIT DIAGRAM



4. TROUBLE SHOOTING

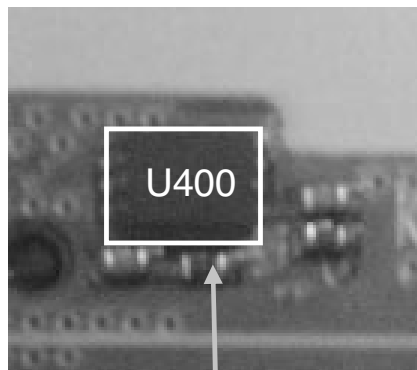
Checking Flow

Indication LED only operates in trickle charging mode.



4.17 Folder on/off Trouble

TEST POINT

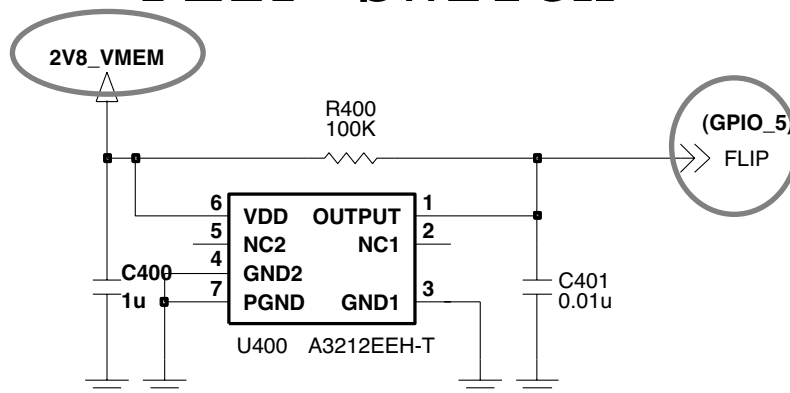


U400.6
(R400)

Figure 26

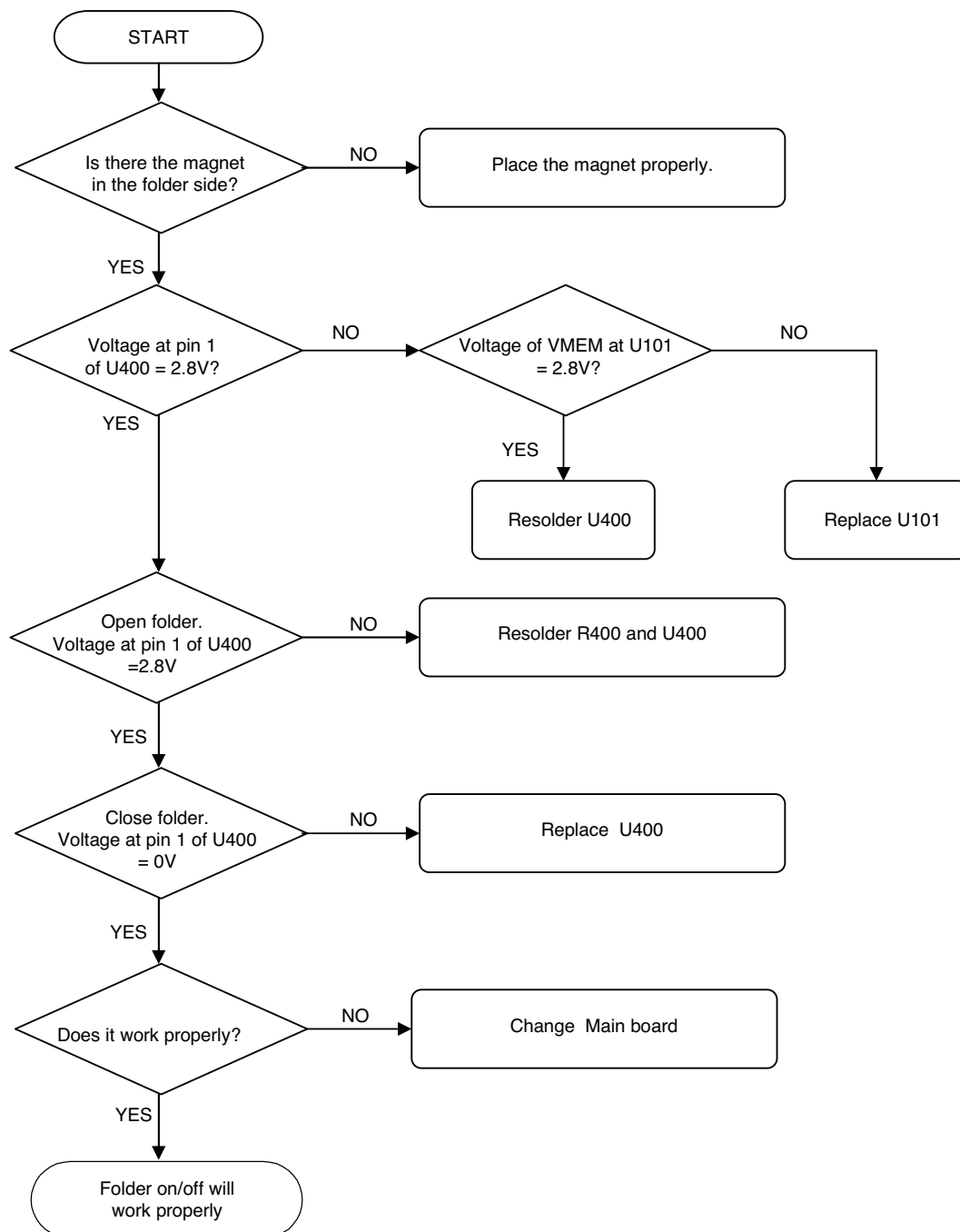
CIRCUIT DIAGRAM

FLIP SWITCH



4. TROUBLE SHOOTING

Checking Flow



5. DOWNLOAD

5.1 Download

A. Download Setup

Figure 5-1 describes Download setup

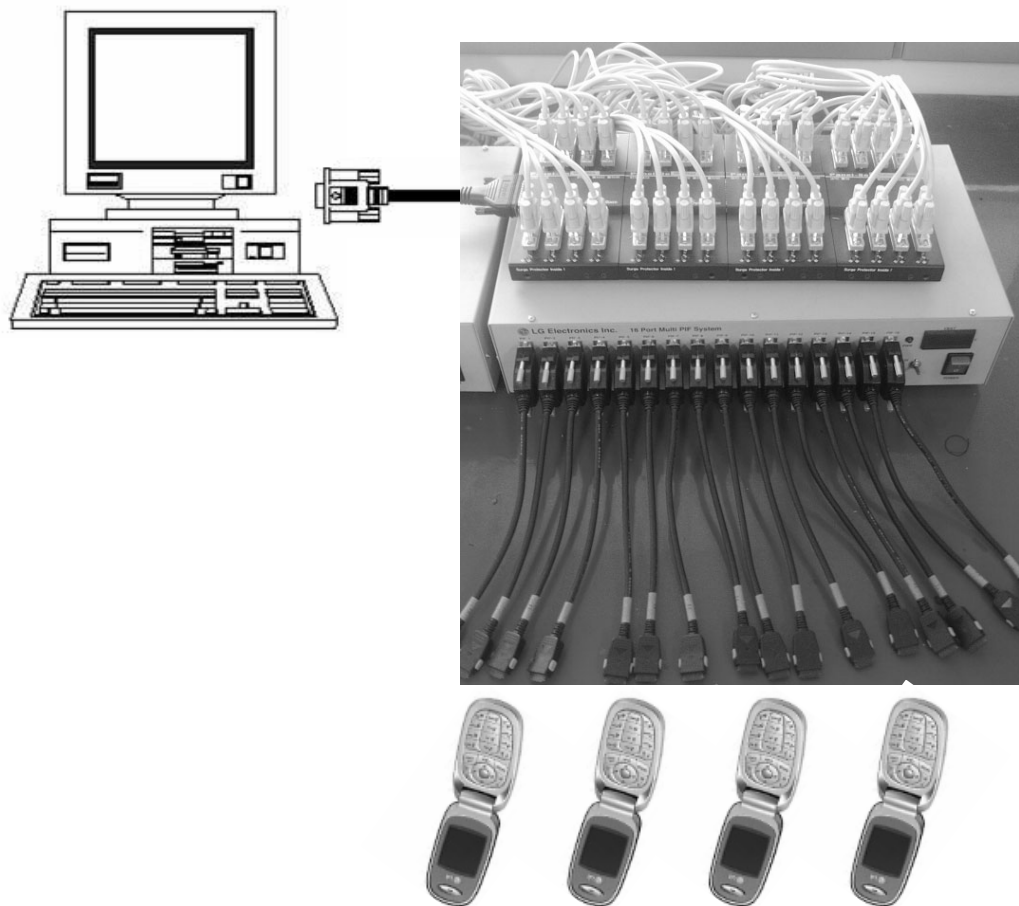


Figure 5-1. Download Setup

5. DOWNLOAD

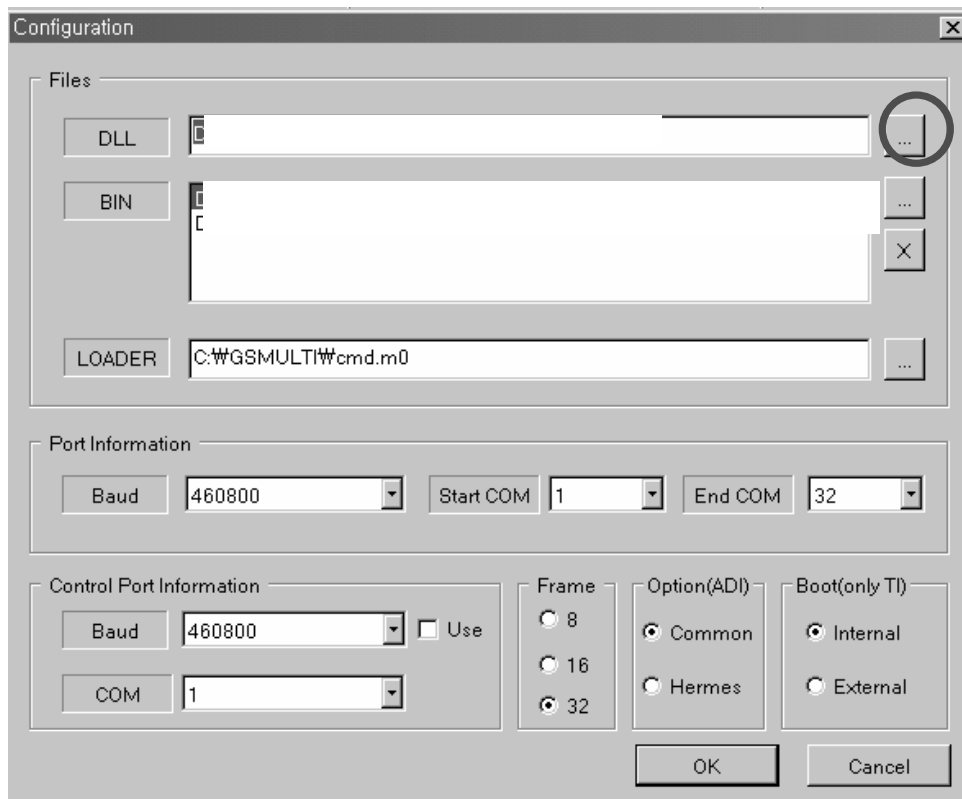
B. Multi Download Procedure

1. Run GSM Multi Download program and select Setting




5. DOWNLOAD

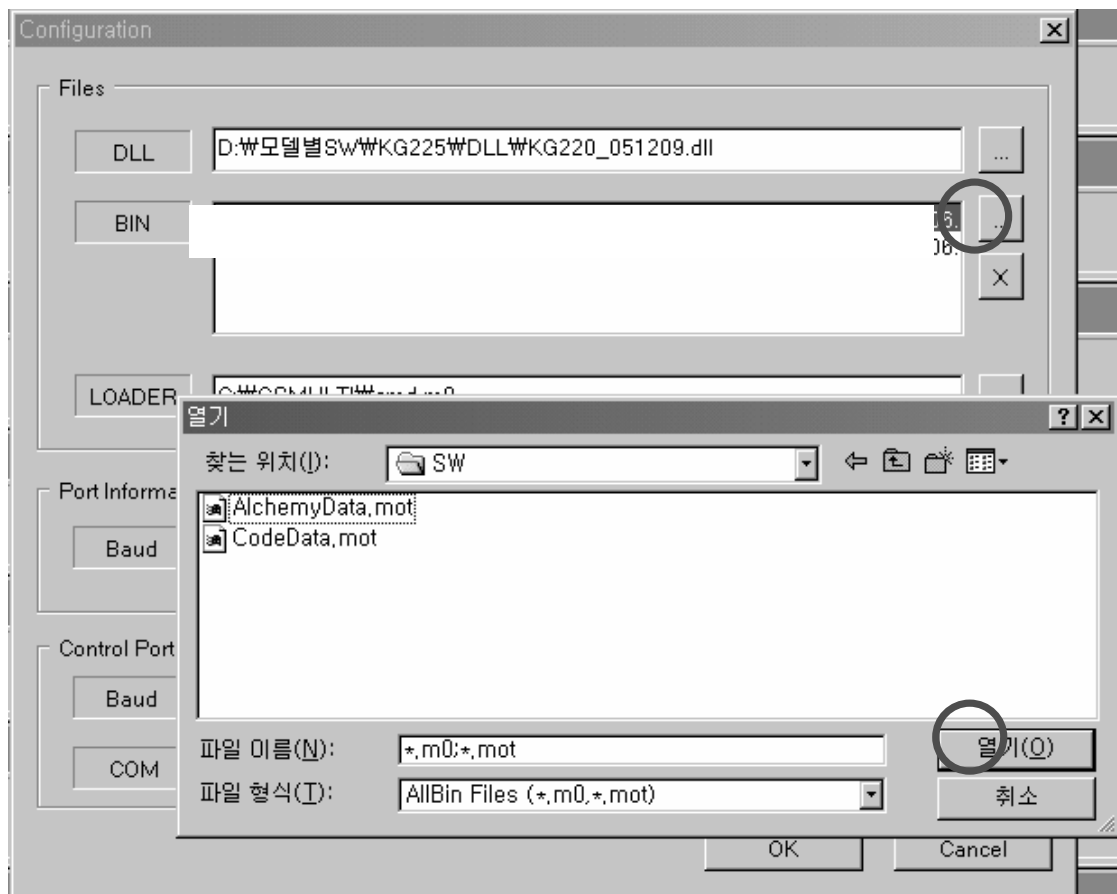
2. Select Configuration from the menu and you may see this window



3. Press  key to select DLL file and press Open

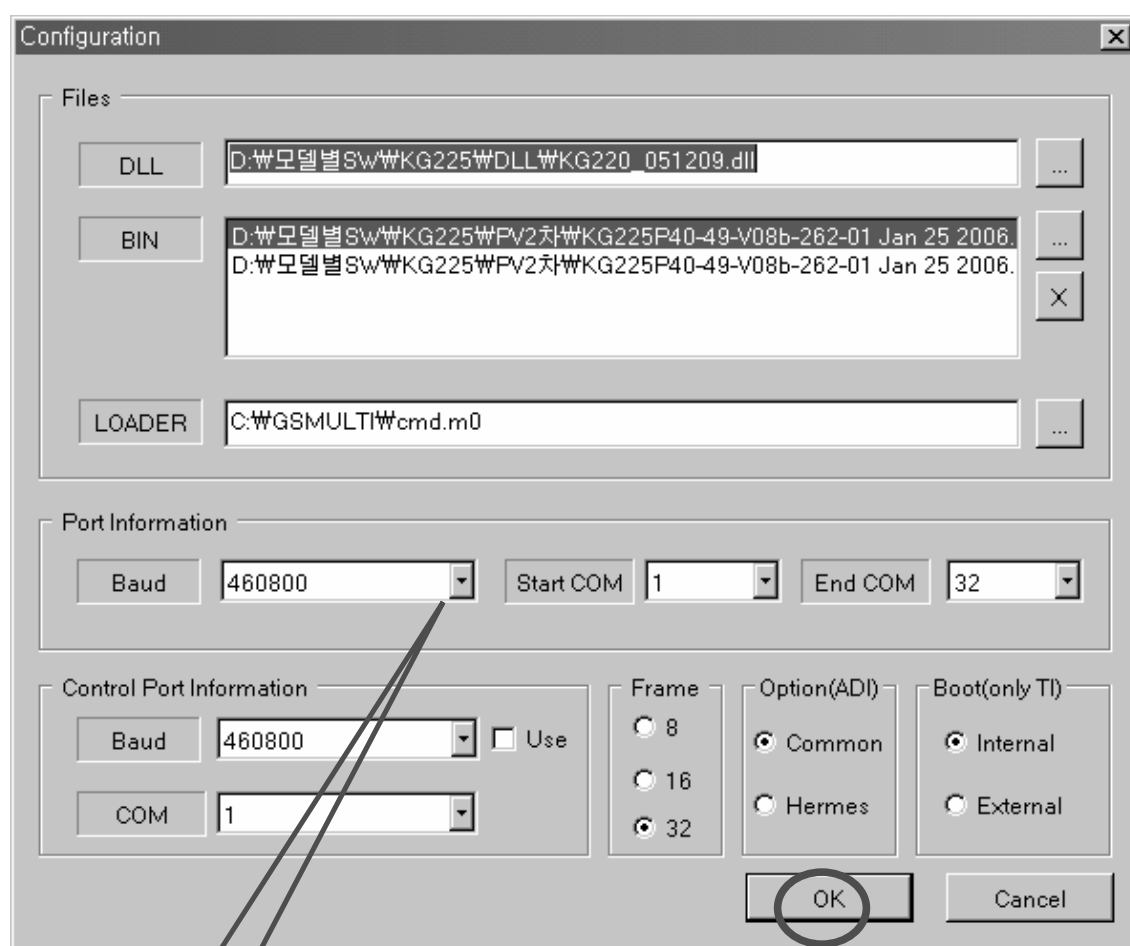


4. Press  key to select the mot files
5. Select AlchemyData.mot and press open
6. Repeat step 4-5 to select CodeData.mot



5. DOWNLOAD

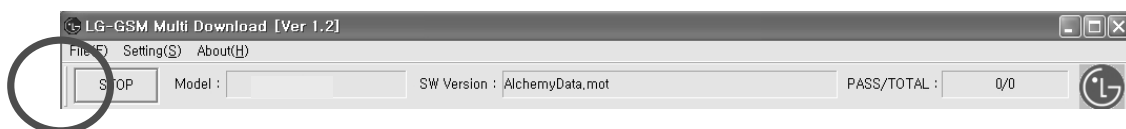
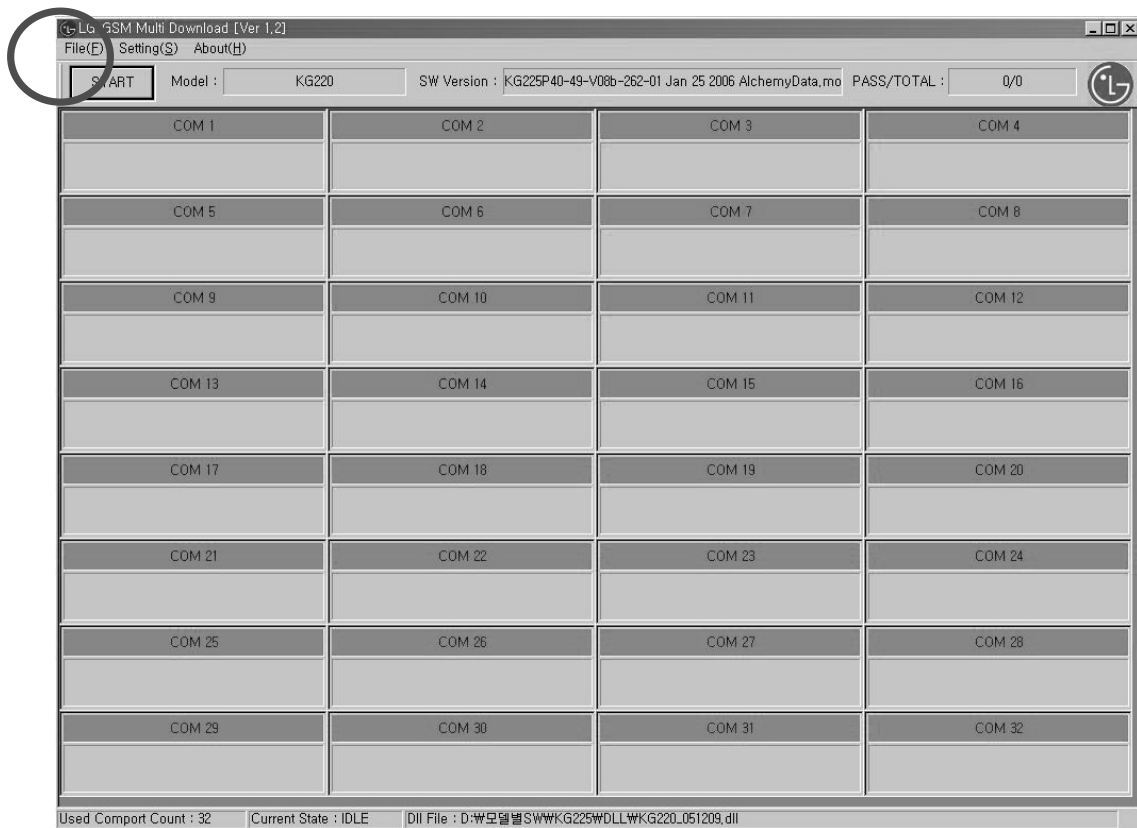
7. Check if the ADI option is set to Hermes
8. Press OK to end Configuration



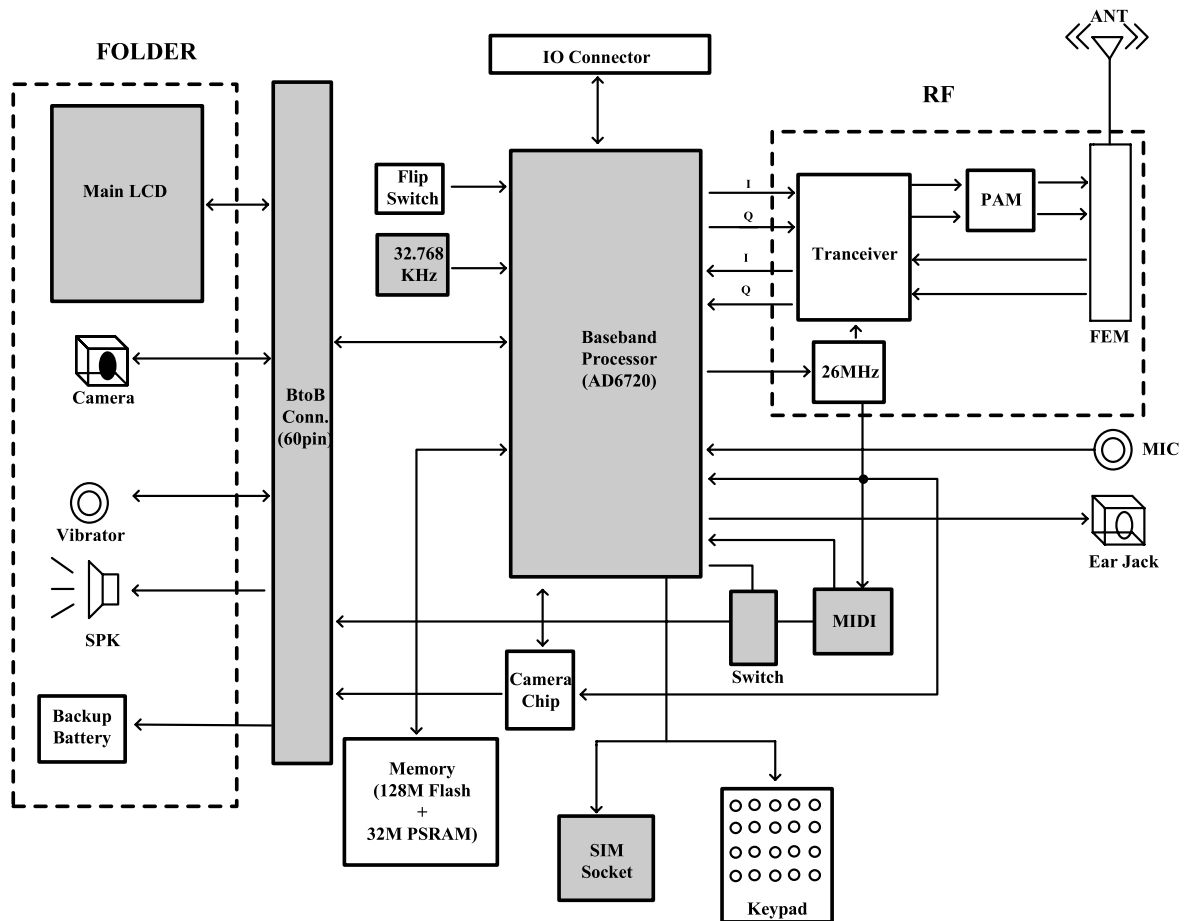
Select Rate

5. DOWNLOAD

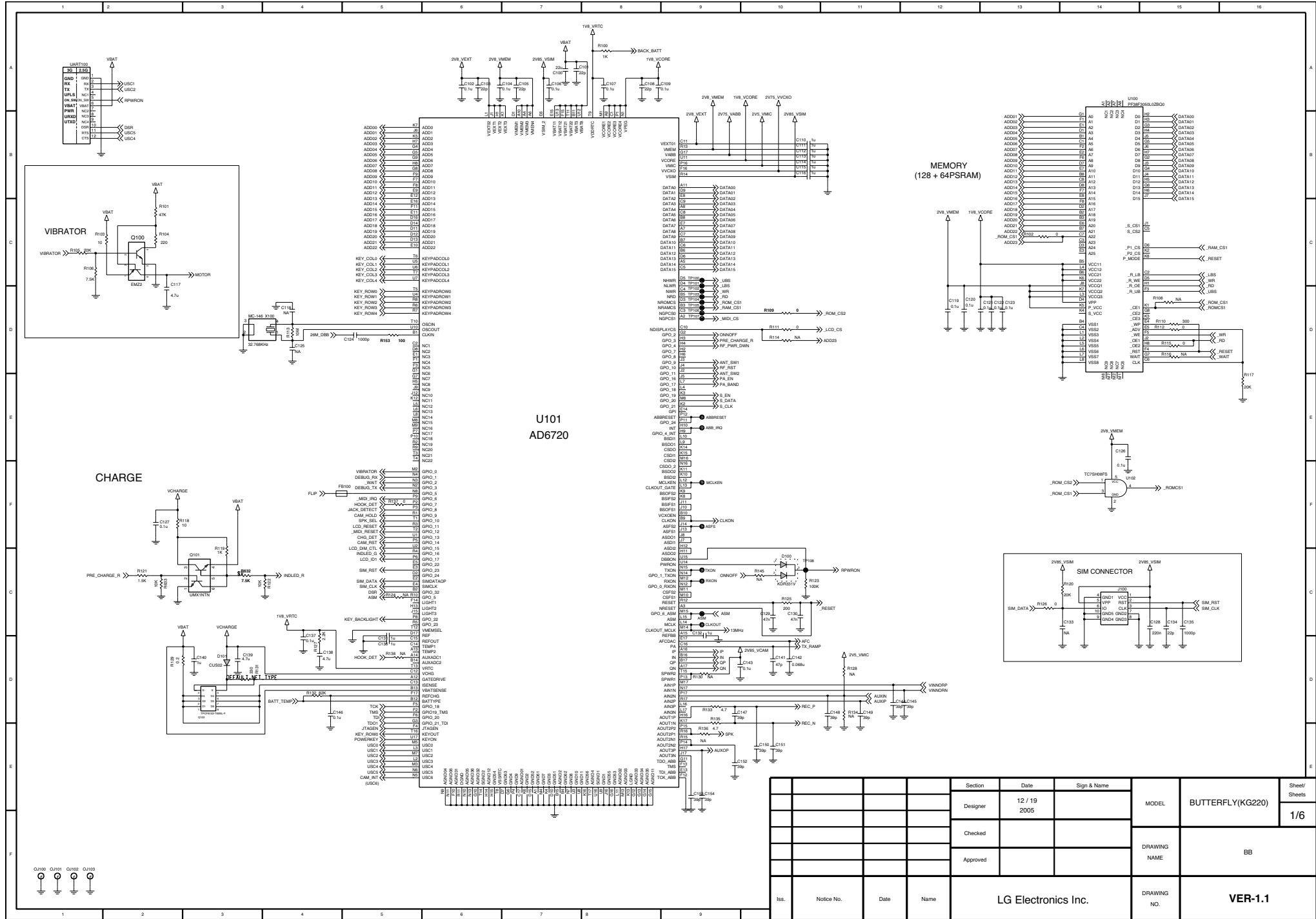
9. Press START to execute download
10. Once downloading is started, press STOP button to keep from re-downloading after downloading is completed.



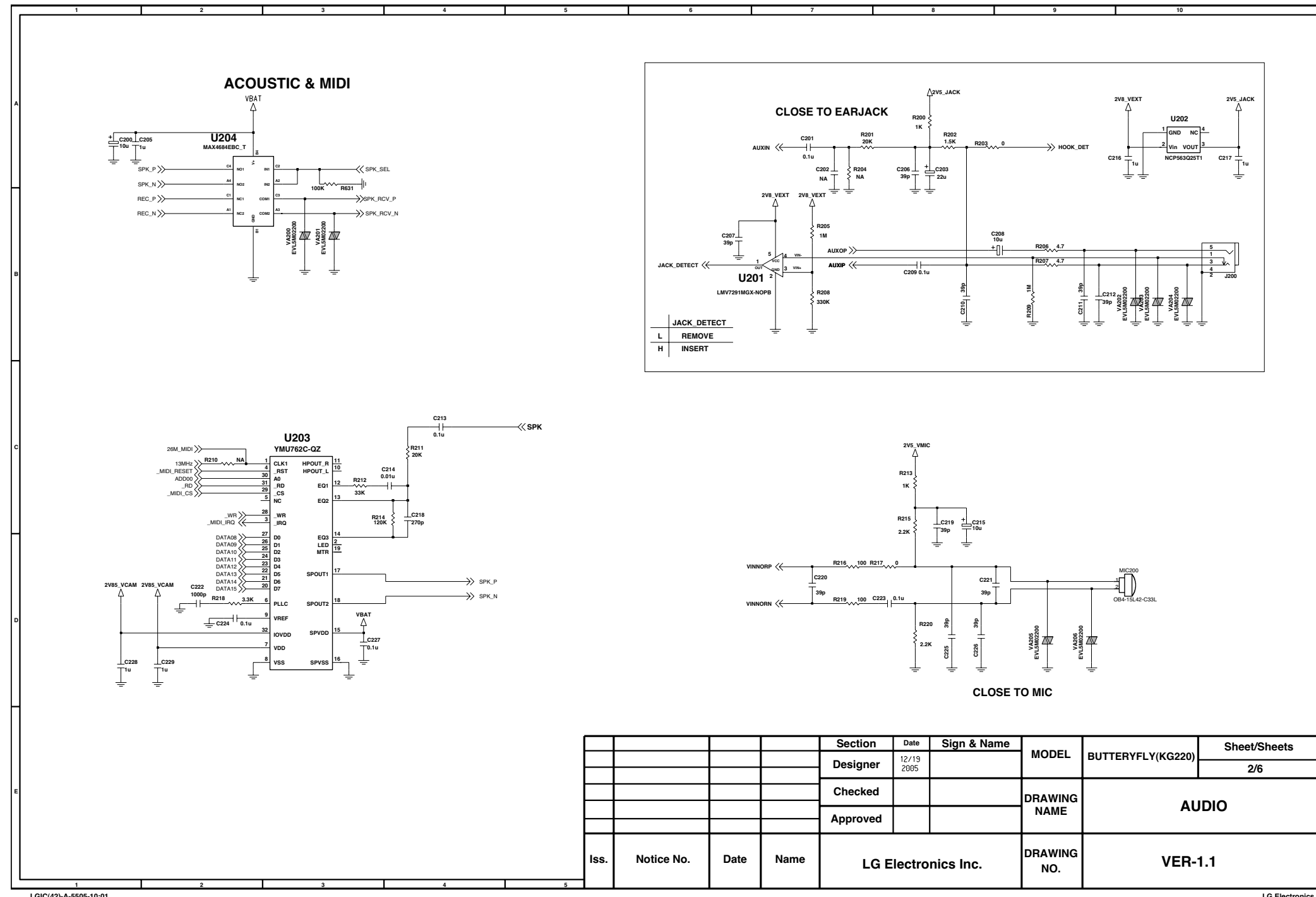
6. BLOCK DIAGRAM



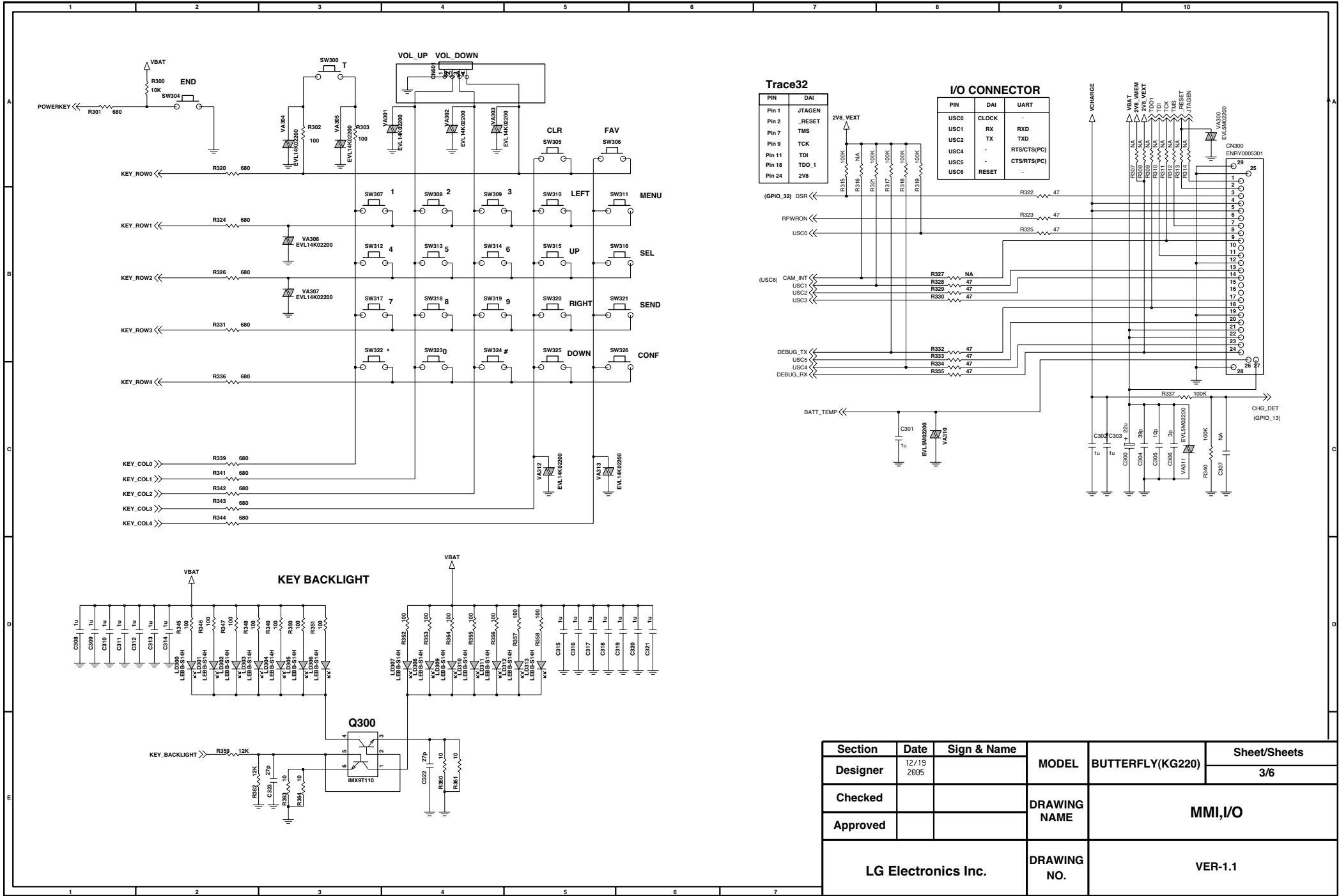
7. CIRCUIT DIAGRAM



7. CIRCUIT DIAGRAM

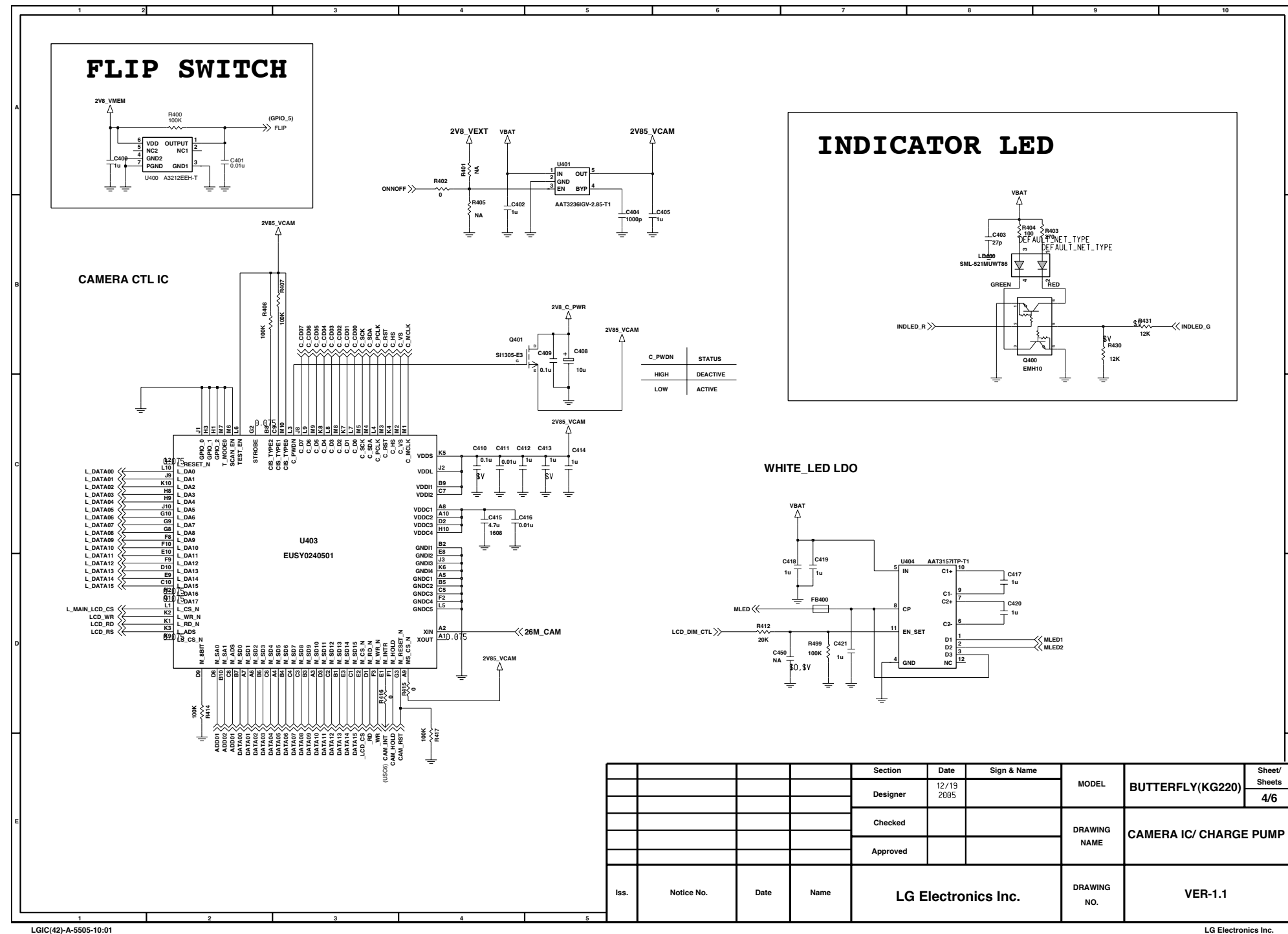


7. CIRCUIT DIAGRAM

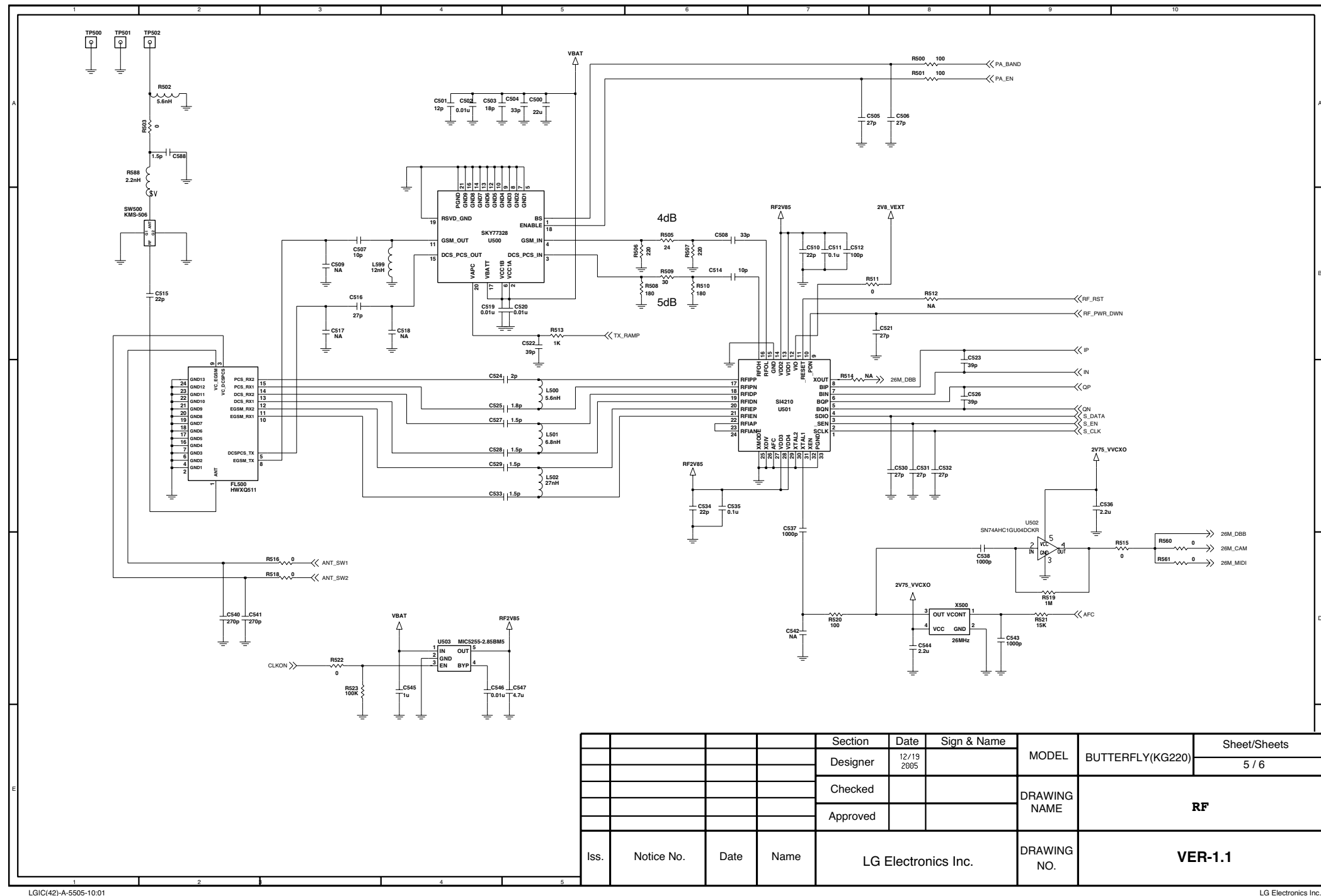


Section	Date	Sign & Name	MODEL	BUTTERFLY(KG220)	Sheet/Sheets
Designer	12/19 2005				3/6
Checked			DRAWING NAME	MMI,I/O	
Approved			DRAWING NO.	VER-1.1	
LG Electronics Inc.					

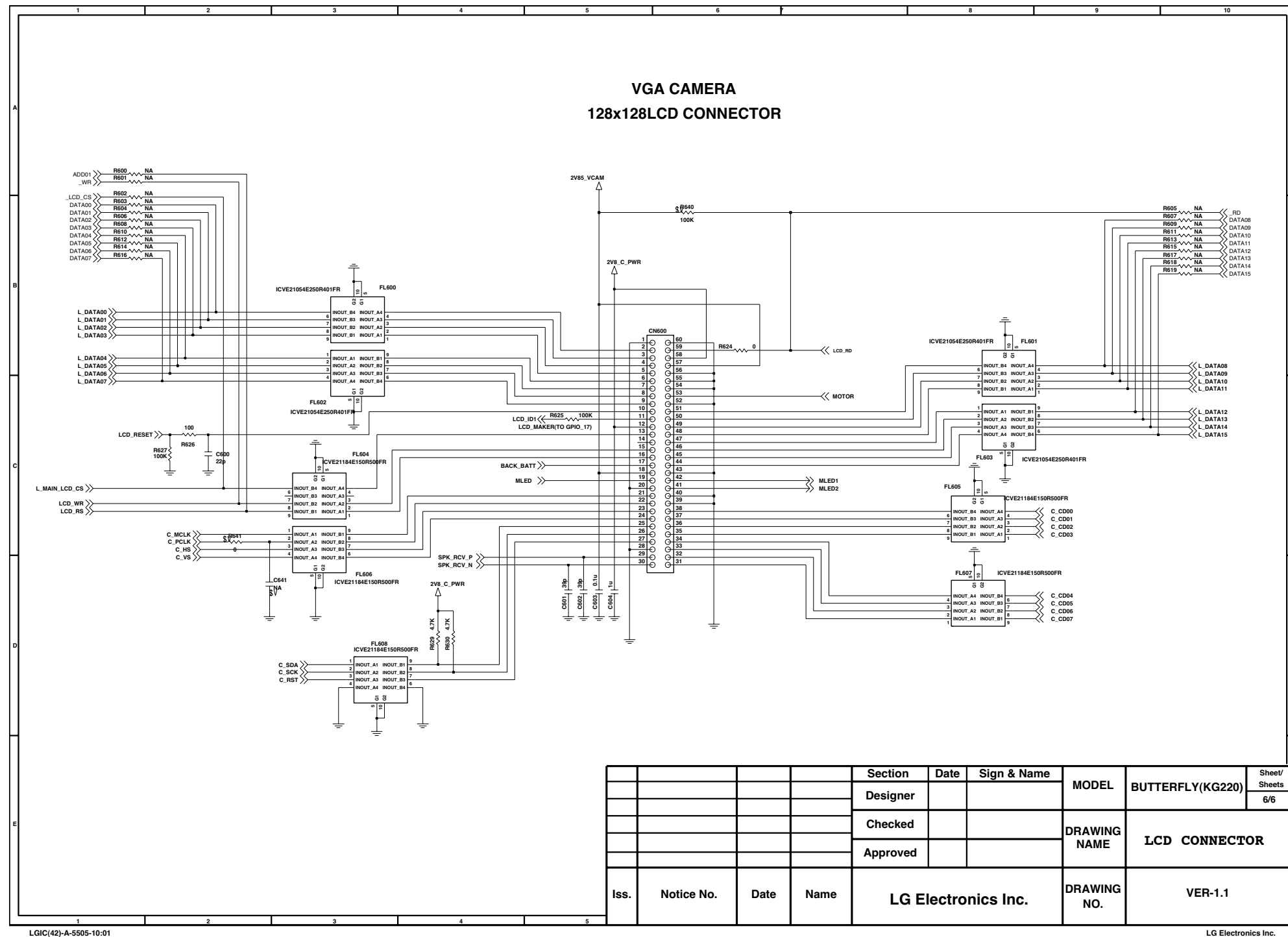
7. CIRCUIT DIAGRAM



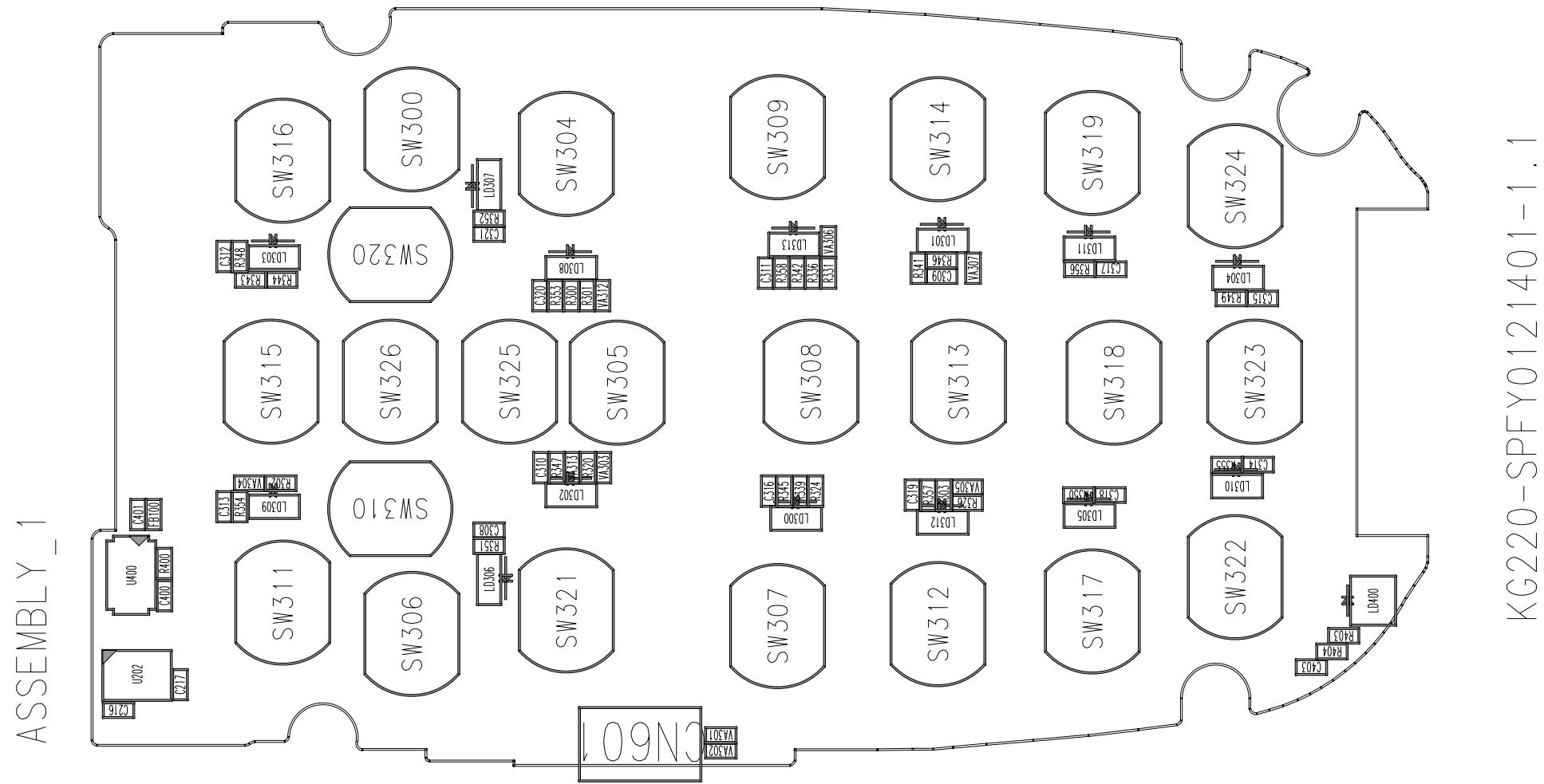
7. CIRCUIT DIAGRAM



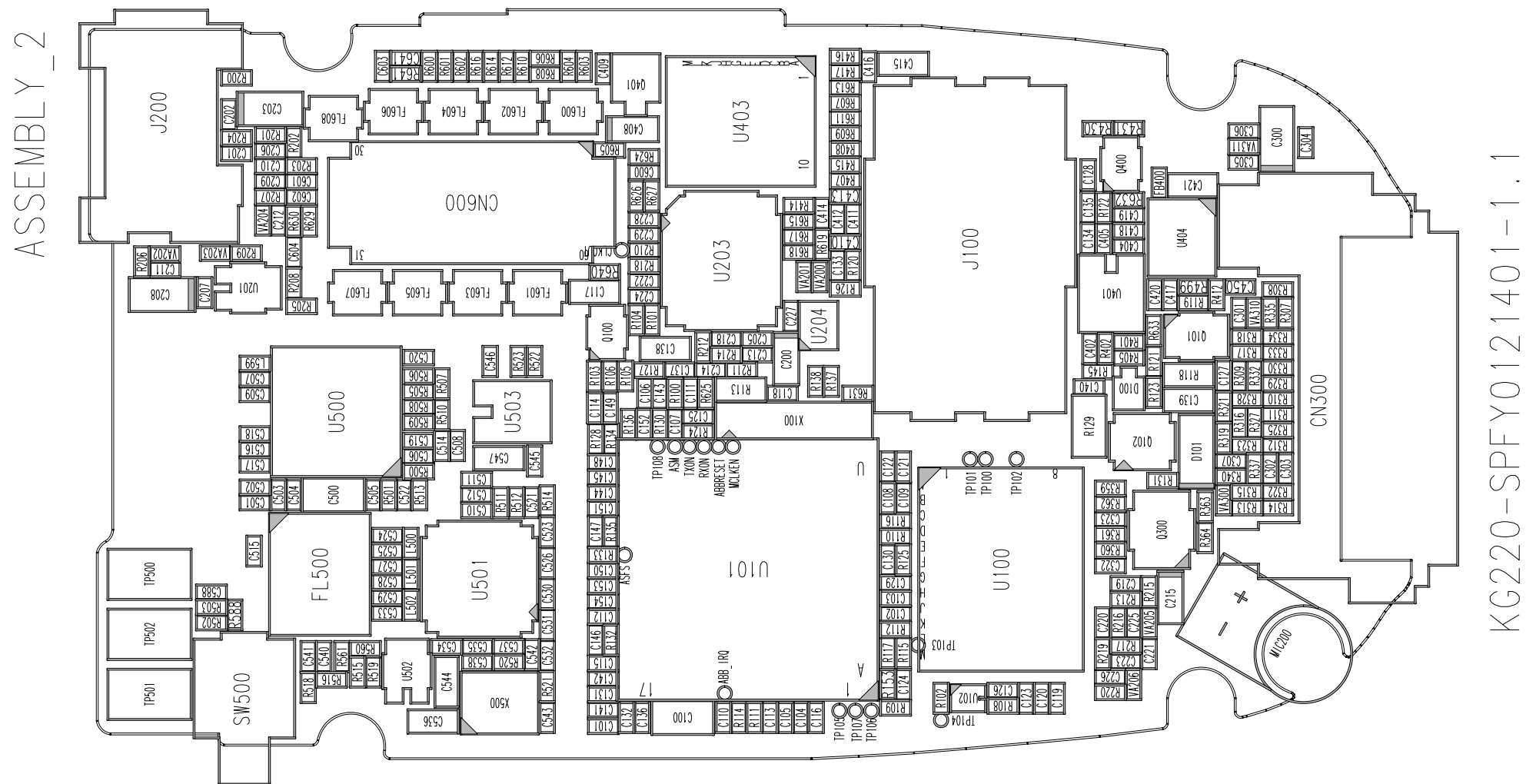
7. CIRCUIT DIAGRAM



8. PCB LAYOUT



8. PCB LAYOUT



9. ENGINEERING MODE

A. About Engineering Mode

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset.

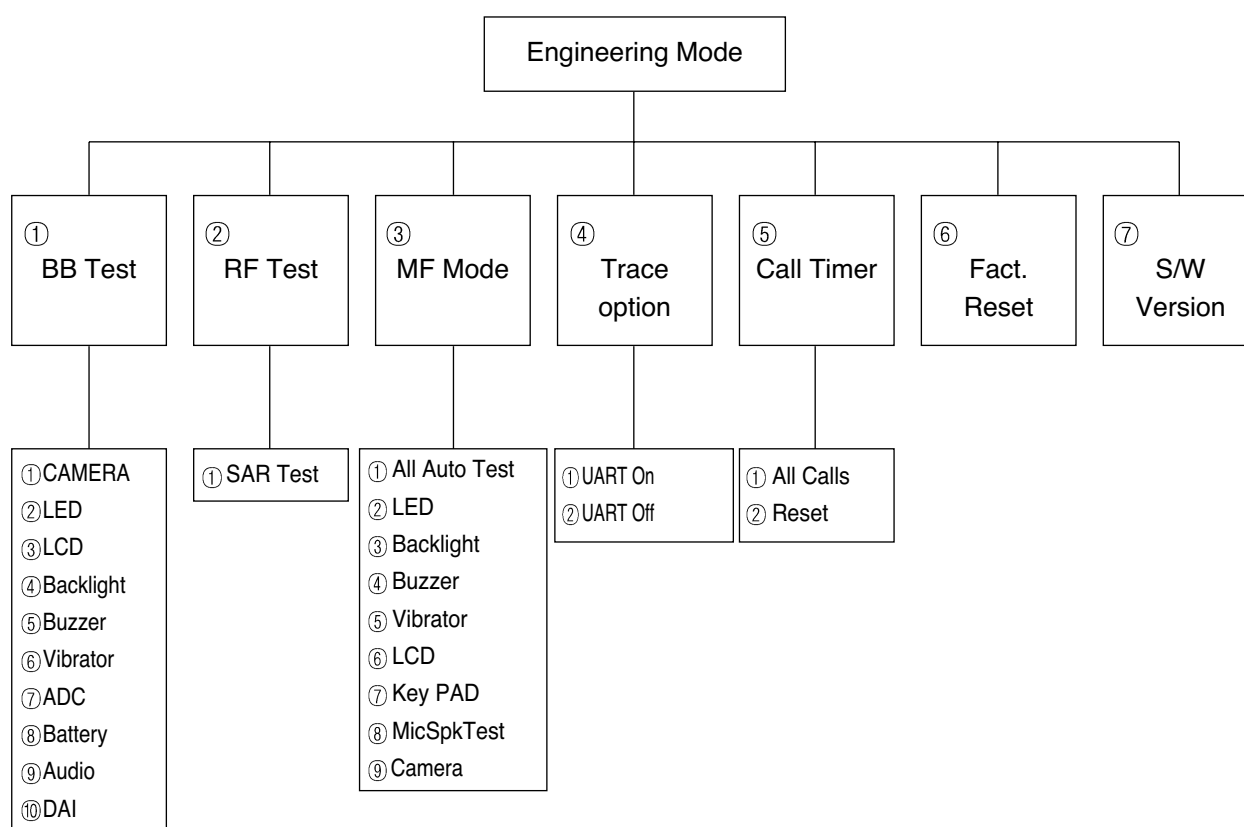
B. Access Codes

The key sequence for switching the engineering mode on is 2945##. Pressing END will switch back to non-engineering mode operation.

C. Key Operation

Use Up and Down key to select a menu and press 'select' key to progress the test. Pressing 'back' key will switch back to the original test menu.

D. Engineering Mode Menu Tree



9. ENGINEERING MODE

9.1 BB Test [MENU 1]

9.1.1 CAMERA

This menu is to test the Camera.

- 1) Main LCD preview : It shows the picture on Main LCD.

9.1.2 LED

This menu is to test the LED.

- 1) Green On
- 2) Green Off
- 3) Red On
- 4) Red Off

9.1.3 LCD

- 1) COLOUR : WHITE, RED, GREEN, BLUE, BLACK
- 2) Contrast Value

9.1.4 Backlight

This menu is to test the LCD Backlight and Keypad EL Backlight.

- 1) Backlight on : LCD Backlight and Keypad EL Backlight light on at the same time.
- 2) Backlight off : LCD Backlight and Keypad EL Backlight light off at the same time.
- 3) Backlight value : This controls brightness of Backlight. When entering into the menu, the present backlight-value in the phone is displayed. Use Left/Right key to adjust the level of brightness. The value of the brightness set at last will be saved in the NVRAM.

9.1.5 Buzzer

This menu is to test the melody sound.

- 1) Melody on : Melody sound is played through the speaker.
- 2) Melody off : Melody sound is off.

9.1.6 Vibrator

This menu is to test the vibration mode.

- 1) Vibrator on : Vibration mode is on.
- 2) Vibrator off : Vibration mode is off.

9.1.7 ADC (Analog to Digital Converter)

This displays the value of each ADC.

- 1) MVBAT ADC : Main Voltage Battery ADC
- 2) AUX ADC : Auxiliary ADC
- 3) TEMPER ADC : Temperature ADC

9.1.8 BATTERY

- 1) Bat Cal : This displays the value of Battery Calibration.

The following menus are displayed in order : BAT_LEV_4V, BAT_LEV_3_LIMIT, BAT_LEV_2_LIMIT, BAT_LEV_1_LIMIT, BAT_IDLE_LIMIT, BAT_INCALL_LIMIT, SHUT_DOWN_VOLTAGE, BAT_RECHARGE_LMT

- 2) TEMP Cal : This displays the value of Temperature Calibration.

The following menus are displayed in order : TEMP_HIGH_LIMIT, TEMP_HIGH_RECHARGE_LMT, TEMP_LOW_RECHARGE_LMT, TEMP_LOW_LIMIT

9.1.9 Audio

This is a menu for setting the control register of Voiceband Baseband Codec chip.

Although the actual value can be written over, it returns to default value after switching off and on the phone.

- 1) VbControl1 : VbControl1 bit Register Value Setting
- 2) VbControl2 : VbControl2 bit Register Value Setting
- 3) VbControl3 : VbControl3 bit Register Value Setting
- 4) VbControl4 : VbControl4 bit Register Value Setting
- 5) VbControl5 : VbControl5 bit Register Value Setting
- 6) VbControl6 : VbControl6 bit Register Value Setting

9.1.0 DAI (Digital Audio Interface)

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.

- 1) DAI AUDIO : DAI audio mode
- 2) DAI UPLINK : Speech encoder test
- 3) DAI DOWNLINK : Speech decoder test
- 4) DAI OFF : DAI mode off

9. ENGINEERING MODE

9.2 RF Test [MENU 2]

9.2.1 SAR test

This menu is to test the Specific Absorption Rate.

- 1) SAR test on : Phone continuously process TX only. Call-setup equipment is not required.
- 2) SAR test off : TX process off

9.3 MF mode [MENU 3]

This manufacturing mode is designed to do the baseband test automatically. Selecting this menu will process the test automatically, and phone displays the previous menu after completing the test.

9.3.1 All auto test

LCD, Backlight, Vibrator, Buzzer, Key Pad, Mic&Speaker,

9.3.2 Backlight

LCD Backlight is on for about 1.5 seconds at the same time, then off.

9.3.3 Buzzer

This menu is to test the volume of Melody. It rings in the following sequence. Volume 1, Volume 2, Volume 3, Volume 0 (mute), Volume 4, Volume 5.

9.3.4 Vibrator

Vibrator is on for about 1.5 seconds.

9.3.5 LCD

1)LCD

Main LCD screen resolution tests horizontally and vertically one by one and fills the screen.

9.3.6 Key pad

When a pop-up message shows 'Press Any Key', you may press any keys including side keys, but not [Soft2 Key]. If the key is working properly, name of the key is displayed on the screen. Test will be completed in 15 seconds automatically.

9.3.7 MicSpk Test

The sound from MIC is recorded for about 3 seconds, then it is replayed on the speaker automatically.

9.4 Trace option [MENU 4]

This is NOT a necessary menu to be used by neither engineers nor users.

9.5 Call timer [MENU 5]

This menu is to set the Digital Audio Interface Mode for Speech Transcoder and Acoustic testing.

- 1) All calls : This displays total conversation time. User cannot reset this value.
- 2) Reset settings : This resets total conversation time to this, [00:00:00].

9.6 Fact. Reset [MENU 6]

This Factory Reset menu is to format data block in the flash memory and this procedure set up the default value in data block.

Attention

- ① Fact. Reset (i.e.Factory Reset) should be only used during the Manufacturing process.
- ② Servicemen should NOT progress this menu, otherwise some of valuable data such as Setting value, RF Calibration data, etc. cannot be restored again.

9.7 S/W version

This displays software version stored in the phone.

10. STAND ALONE TEST

10. STAND ALONE TEST

10.1 Introduction

This manual explains how to examine the status of RX and TX of the model.

A. Tx Test

TX test - this is to see if the transmitter of the phones is activating normally.

B. Rx Test

RX test - this is to see if the receiver of the phones is activating normally.

10.2 Setting Method

A. COM port

- a. Move your mouse on the "Connect" button, then click the right button of the mouse and select "Com setting".
- b. In the "Dialog Menu", select the values as explained below.
 - Port : select a correct COM port
 - Baud rate : 38400
 - Leave the rest as default values

B. Tx

1. Selecting Channel

- Select one of GSM or DCS Band and input appropriate channel.

2. Selecting APC

- a. Select either Power level or Scaling Factor.
- b. Power level
 - Input appropriate value GSM (between 5~19) or DCS (between 0~15)
- c. Scaling Factor
 - A 'Ramp Factor' appears on the screen.
 - You may adjust the shape of the Ramp or directly input the values.

C. Rx

1. Selecting Channel

- Select one of GSM or DCS Band and input appropriate channel.

2. Gain Control Index (0~ 26) and RSSI level

- See if the value of RSSI is close to -16dBm when setting the value between 0 ~ 26 in Gain Control Index.
- Normal phone should indicate the value of RSSI close to -16dBm.

10.3 Means of Test

- Select a COM port
- Set the values in Tx or Rx
- Select band and channel
- After setting them all above, press connect button.
- Press the start button

The screenshot shows a software window titled "HW Test". It is divided into several sections for configuring a hardware test. At the top, there are two radio buttons: "Tx" (selected) and "Rx". Below these, there are two columns of settings. The left column (Tx) includes a radio button for "GSM" (selected) with a value of "62", a radio button for "DCS" with a value of "700", a button labeled "APC", a radio button for "Power Level" (selected) with a value of "10", and a radio button for "Scaling Factor" with a value of "32767". The right column (Rx) includes a radio button for "GSM" (selected) with a value of "62", a radio button for "DCS" with a value of "700", a button labeled "Gain Control Index" with a value of "15", and a button labeled "RSSI Level" with a value of "(dBm)". At the bottom left, there is a section labeled "COM" with two buttons: "Connect" and "Disconnect". At the bottom right, there is a section labeled "Signal" with two buttons: "Start" and "Stop", and a section labeled "Signal Flow" with two buttons: "Send" and "Receive".

Figure 10-1. HW test program

10. STAND ALONE TEST

Figure 10-2. HW test setting

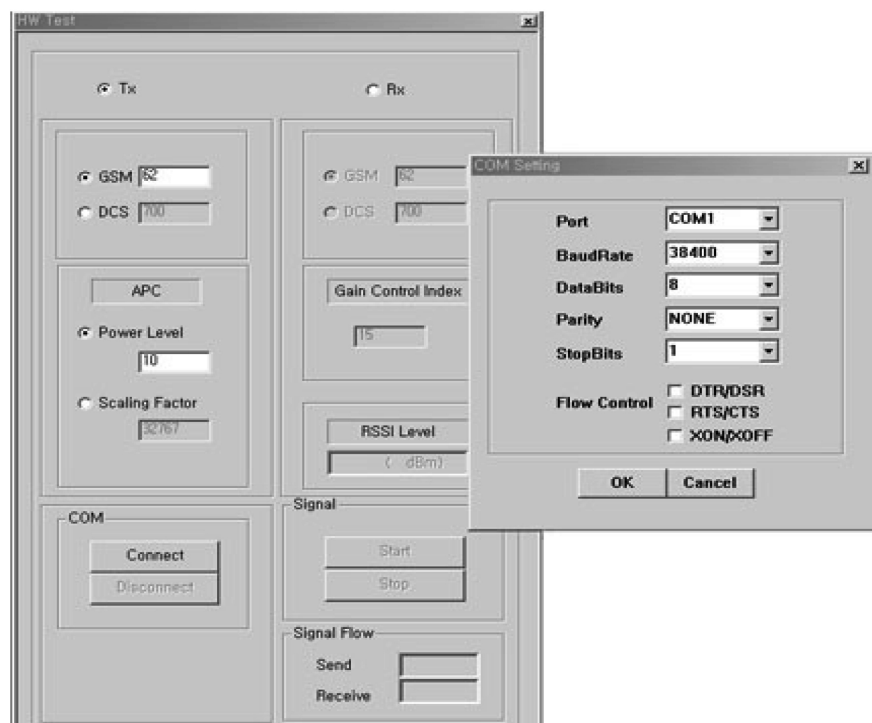
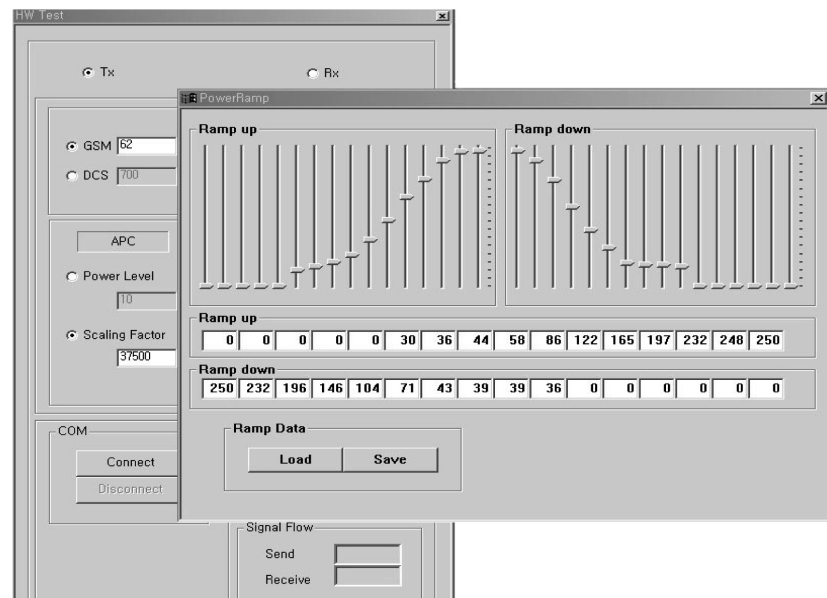


Figure 10-3. Ramping profile



11. AUTO CALIBRATION

11.1 Overview

Auto-cal (Auto Calibration) is the PC side Calibration tool that perform Tx, Rx and Battery Calibration with Agilent 8960(GSM call setting instrument) and Tektronix PS2521G(Programmable Power supply). Auto-cal generates calibration data by communicating with phone and measuring equipment then write it into calibration data block of flash memory in GSM phone.

11.2 Equipment List

Equipment for Calibration	Type / Model	Brand
Wireless Communication Test Set	HP-8960	Agilent
RS-232 Cable and Test JIG		LG
RF Cable		LG
Power Supply	HP-66311B	Agilent
GPIO interface card	HP-GPIB	Agilent
Calibration & Final test software		LG
Test SIM Card		
PC (for Software Installation)	Pentium II class above 300MHz	

Table 11-1. Calibration Equipment List.

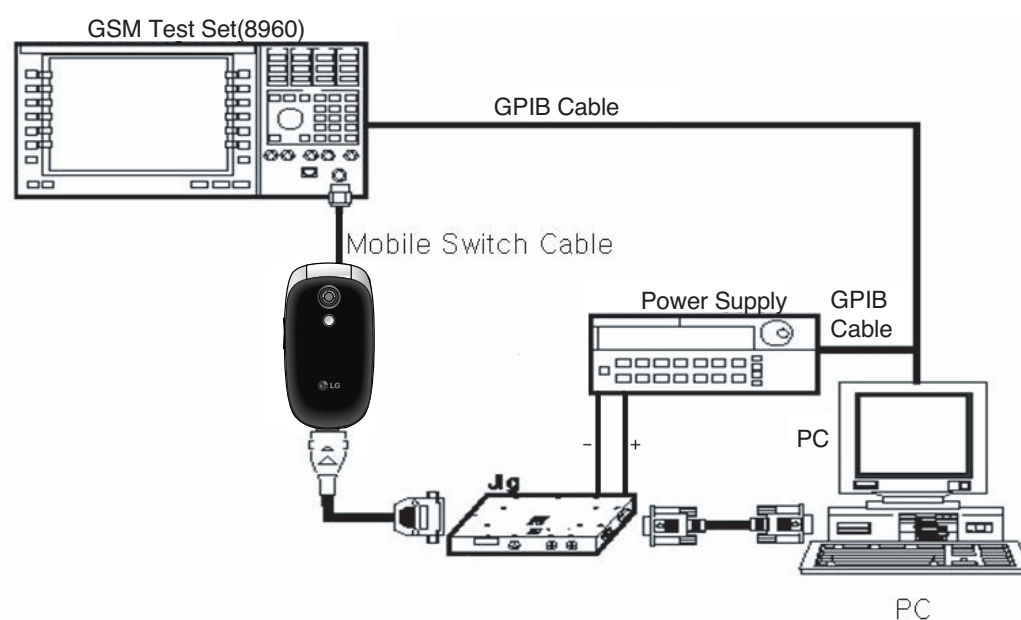


Figure 11-1. Equipment Setup

11. AUTO CALIBRATION

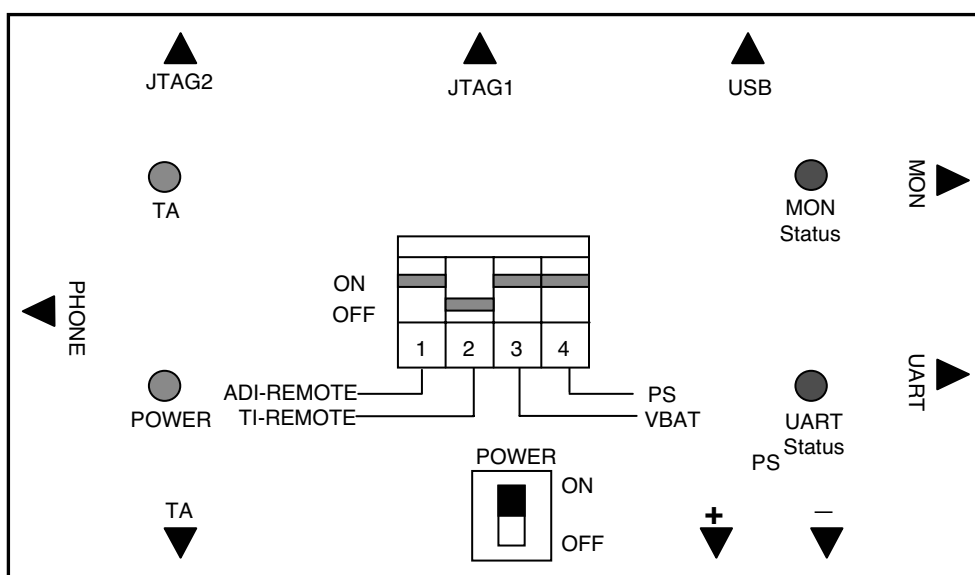


Figure 11-2 The top view of Test JIG

11.3 Test Jig Operation

Power Source	Description
Power Supply	Usually 4.0V

Table 11-2 Jig Power

Switch Number	Name	Description
Switch 1	ADI-REMOTE	In ON state, phone is awaked. It is used ADI chipset.
Switch 2	TI-REMOTE	In ON state, phone is awaked. It is used TI chipset.
Switch 3	VBAT	Power is provided for phone from battery
Switch 4	PS	Power is provided for phone from Power supply

Table 11-3 Jig DIP Switch

LED Number	Name	Description
LED 1	Power	Power is provided for Test Jig
LED 2	TA	Indicate charging state of the phone battery
LED 3	UART	Indicate data transfer state through the UART port
LED 4	MON	Indicate data transfer state through the MON port

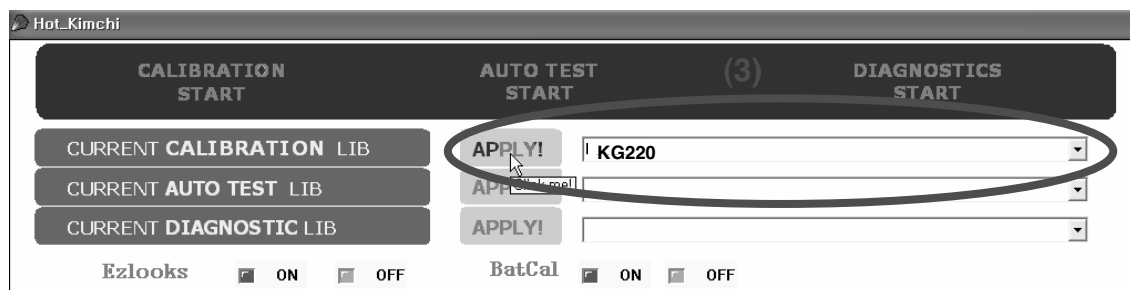
Table 11-4 LED Description

11. AUTO CALIBRATION

1. Connect as Fig 6-2(RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general)
2. Set the Power Supply 4.0V
3. Set the 3rd, 4th of DIP SW ON state always
4. Press the Phone power key, if the Remote ON is used, 1st ON state

11.4 Procedure

1. Connect as Fig 11-2 (RS232 serial cable is connected between COM port of PC and MON port of TEST JIG, in general.)
2. Run Hot_Kimchi.exe to start calibration.
3. From the Calibration Lib menu, Select F3000, then, Press APPLY!



11. AUTO CALIBRATION

4. Press Calibration START

Hot_Kimchi

CALIBRATION
START

(4)

AUTO TEST
START

DIAGNOSTICS
START

CURRENT CALIBRATION LIB

CURRENT AUTO TEST LIB

CURRENT DIAGNOSTIC LIB

APPLY!

KG220

APPLY!

APPLY!

Ezlooks


☒ ON ☐ OFF

BatCal


☒ ON ☐ OFF

CURRENT PROGRAM STATUS >> KG220

This model is KG220)
Test band : GSM900/DCS 1800/PCS 1900
Max target :

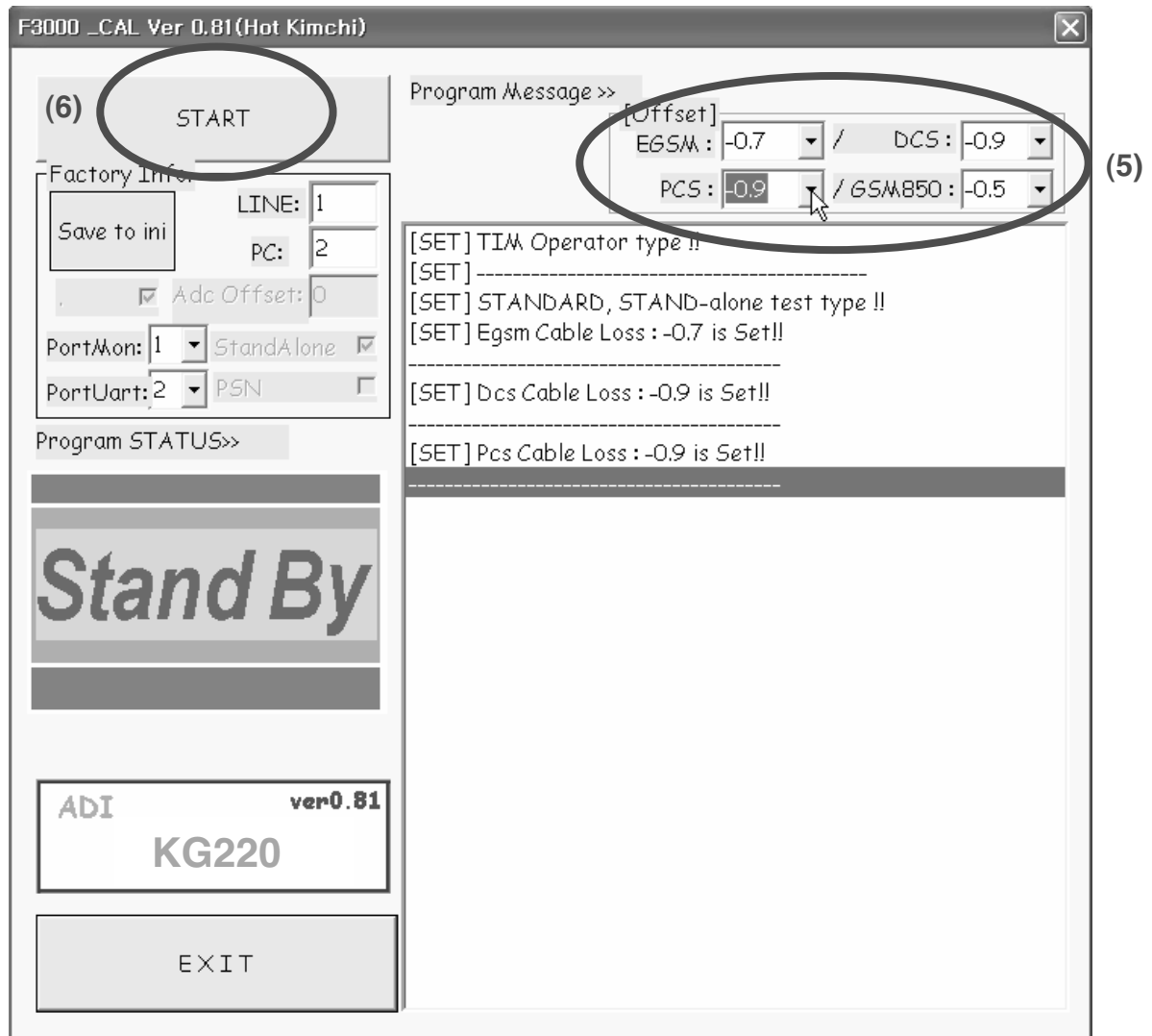

Take Picture

LIBRARY
LOAD
PASS!
From Target
FOLDER



11. AUTO CALIBRATION

5. Select RF Cable Loss value from the Offset menu
6. Press START to execute calibration



11. AUTO CALIBRATION

11.5 AGC

This procedure is for Rx calibration.

In this procedure, We can get RSSI correction value. Set band EGSM and press Start button the result window will show correction values per every power level and gain code and the same measure is performed per every frequency.

11.6 APC

This procedure is for Tx calibration.

In this procedure you can get proper scale factor value and measured power level.

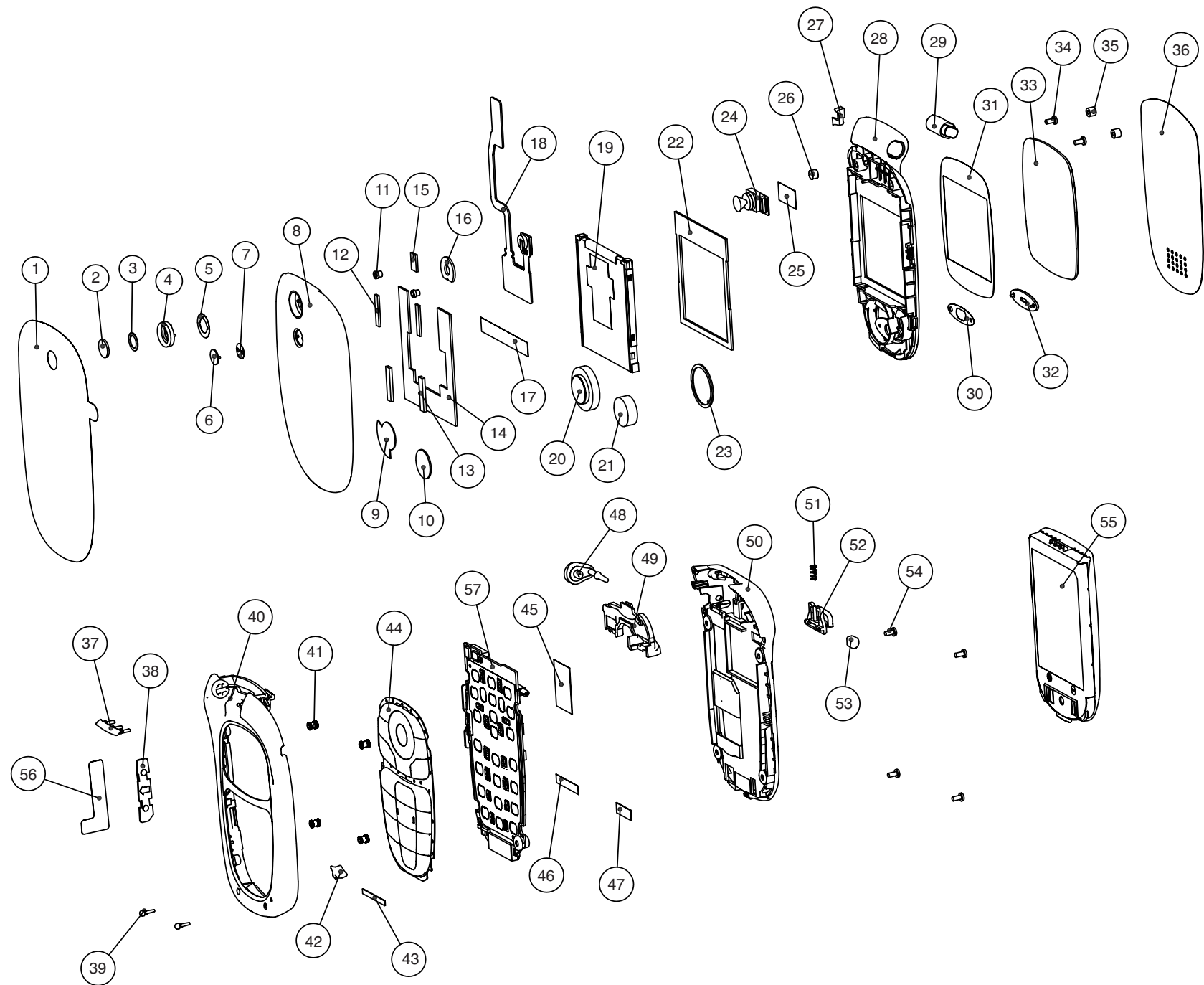
11.7 ADC

This procedure is for battery calibration.

You can get main Battery Config Table and temperature Config Table will be reset.

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.1 EXPLODED VIEW



NO	DESCRIPTION	DRAWING NO	Q'TY
1	TAPE,PROTECTION (FOLDER)	MTAB0095301	1
2	WINDOW,CAMERA	MWAE0014601	1
3	TAPE,DECO	MTAA0104401	1
4	DECO,CAMERA	MDAD0019101	1
5	TAPE,DECO	MTAA0104401	1
6	DECO	MDAY0024301	1
7	TAPE,DECO	MTAA0109001	1
8	COVER,FOLDER(UPPER)	MCJJ00407**	1
9	PAD,SPEAKER	MPBN0027201	1
10	PAD,MOTOR	MPBJ0029301	1
11	INSERT	MICZ0002801	2
12	GASKET,SHIELD FORM	MGAD0106801	2
13	GASKET,SHIELD FORM	MGAD0102901	2
14	PAD,LCD (UPPER)	MPBG0041101	1
15	PAD BACKUP BATT	MPBZ0113201	1
16	PAD,CAMERA	MPBT0024101	1
17	TAPE FPCB	MTAZ0107401	1
18	PCB ASSY,FLEXIBLE	SACY0041901	1
19	LCD MODULE	SVLM0018201	1
20	SPEAKER	SUSY0021401	1
21	VIBRATOR,MOTOR	SJMY0006503	1
22	PAD,LCD (LOWER)	MPBG0041201	1
23	FILTER,RECEIVER	MFB0014601	1
24	CAMERA	SVCY0010101	1
25	TAPE (CAMERA)	MTAZ0107301	1
26	MAGNET,SWITCH	MMAA0001601	1
27	CAP, HINGE	MCCZ0016301	1
28	COVER,FOLDER(LOWER)	MCJH00331**	1
29	HINGE,FOLDER	MHFD0005901	1
30	TAPE,DECO	MTAA0104501	1
31	TAPE,WINDOW	MTAD0046301	1
32	DECO,RECEIVER	MDAH0016501	1
33	WINDOW,LCD	MWAC0063001	1
34	SCREW MACHINE,BIND	GMEY0011201	2
35	CAP,SCREW	MCCH0034608	2
36	TAPE,PROTECTION (WINDOW)	MTAB0095401	1
37	STOPPER,HINGE	MSGB0013001	1
38	BUTTON,SIDE	MBJL0029001	1
39	BUMPER	MBHY0017901	2
40	COVER,FRONT	MCJK00540**	1
41	INSERT	MICZ0022401	4
42	INDICATOR,LED	MIAA0017401	1
43	GASKET SHIELD, FRONT IO	MGAD0103001	1
44	BUTTON,DIAL	MBJA00202**	1
45	GASKET SHIELD, FPCB	MGAD0111301	1
46	TAPE,SHIELD	MTAC0034801	1
47	GASKET SHIELD, REAR IO	MGAD0103201	1
48	CAP,EARPHONE JACK	MCCC003270	1
49	INNTENA	SNGF0013701	1
50	COVER,REAR	MCJN00495**	1
51	SPRING,COIL	MSDB0001701	1
52	LOCKER,BATTERY	MLEA0028601	1
53	CAP,MOBILE SWITCH	MCCF0032401	1
54	SCREW MACHINE,BIND	GMEY0011201	4
55	BATTERY PACK	SBPL00818**	1
56	TAPE,PROTECTION (SIDE KEY)	MTAB0095901	1
57	PCB ASSY,MAIN	SAFY0156301	1

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
1		GSM(FOLDER)	TGFF0085601	KG220 ORFDB	Dark Blue	
2	AAAY00	ADDITION	AAAY0155001		Black	
2	APEY00	PHONE	APEY0263301	KG220 ORFDB	Dark Blue	
3	ACGG00	COVER ASSY,FOLDER	ACGG0069801	KG220 ORFDB	Black	
4	ACGH00	COVER ASSY, FOLDER(LOWER)	ACGH0041401	KG220 ORFDB	Dark Blue	
5	MCJH00	COVER,FOLDER(LOWER)	MCJH0033101	KG220 ORFDB	Silver	28
5	MDAH00	DECO,RECEIVER	MDAH0016501	KG220 ORFDB	Metal Silver	32
5	MFBB00	FILTER,RECEIVER	MFBB0014601	KG220 ORFDB	Black	23
5	MMAA00	MAGNET,SWITCH	MMAA0001601	7100 magnetic	Silver	26
5	MPBG00	PAD,LCD	MPBG0041201	KG220 ORFDB	Black	22
5	MTAA00	TAPE,DECO	MTAA0104501	KG220 ORFDB		30
5	MTAD00	TAPE,WINDOW	MTAD0046301	KG220 ORFDB (TAPE WINDOW MAIN)		31
5	MTAZ00	TAPE	MTAZ0107301	KG220 tape,Camera		25
4	ACGJ00	COVER ASSY, FOLDER(UPPER)	ACGJ0054001	KG220 ORFDB	Black	
5	MCJJ00	COVER,FOLDER(UPPER)	MCJJ0040701	KG220 ORFDB	Dark Blue	8
5	MDAD00	DECO,CAMERA	MDAD0019101	KG220 ORFDB	Silver	4
5	MDAY00	DECO	MDAY0024301	KG220 ORFDB (DECO MIRROR)	Metal Silver	6
5	MGAD00	GASKET,SHIELD FORM	MGAD0102901	KG220 ORFDB		13
5	MGAD01	GASKET,SHIELD FORM	MGAD0106801	KG220, LCD Connector Gasket	Silver	12
5	MICZ00	INSERT	MICZ0002801	M1.4x2.3		11
5	MPBG00	PAD,LCD	MPBG0041101	KG220 ORFDB	Black	14
5	MPBJ00	PAD,MOTOR	MPBJ0029301	KG220 ORFDB	Black	10
5	MPBN00	PAD,SPEAKER	MPBN0027201	KG220 ORFDB	Black	9
5	MPBT00	PAD,CAMERA	MPBT0024101	KG220 ORFDB	Black	16
5	MPBZ00	PAD	MPBZ0113201	KG220 ORFDB (PAD BACKUP BATT)	Black	15
5	MTAA00	TAPE,DECO	MTAA0104401	KG220 ORFDB		3,5
5	MTAA01	TAPE,DECO	MTAA0109001	KG220, Mirror Deco Tape		7
5	MTAB00	TAPE,PROTECTION	MTAB0095301	KG220 ORFDB		1
5	MTAD00	TAPE,WINDOW	MTAD0046201	KG220 ORFDB		
4	ACGK00	COVER ASSY,FRONT	ACGK0066701	KG220 ORFDB	Silver	
5	MBHY00	BUMPER	MBHY0017901	KG220 ORFDB	Silver	39
5	MBJL00	BUTTON,SIDE	MBJL0029001	KG220 ORFDB	Metal Silver	38

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
5	MCJK00	COVER,FRONT	MCJK0054001	KG220 ORFDB	Silver	40
5	MGAD00	GASKET,SHIELD FORM	MGAD0103001	KG220 ORFDB (GASKET SHIELD FORM IO)		43
5	MIAA00	INDICATOR,LED	MIAA0017401	KG220 ORFDB	Milk	42
5	MICZ00	INSERT	MICZ0022401	LG-G692 CHNSV(SILVER+BLACK) , M1.4*L3.0		41
5	MSGB00	STOPPER,HINGE	MSGB0013001	KG220 ORFBK	Silver	37
5	MTAB00	TAPE,PROTECTION	MTAB0095901	KG220 ORFDB (SIDEKEY PROTECT TAPE)	Soft Blue	56
4	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK		
4	MCCH00	CAP,SCREW	MCCH0034608	F2410 SILVER	Silver	35
4	MCCZ00	CAP	MCCZ0016301	KG220 Cap,Dummy Hinge	Silver	27
4	MHFD00	HINGE,FOLDER	MHFD0005901	Pi5.8 5Kgf, CAN Type, Prexco(Head R1.0)	Deep Silver	29
4	MLAC00	LABEL,BARCODE	MLAC0003401	EZ LOOKS(user for mechanical)		
4	MTAB01	TAPE,PROTECTION	MTAB0095401	KG220 ORFDB		36
4	MTAZ00	TAPE	MTAZ0107401	KG220 ORFDB, Tape,FPCB		17
4	MWAC00	WINDOW,LCD	MWAC0063001	KG220 ORFDB		33
4	MWAE00	WINDOW,CAMERA	MWAE0014601	KG220 ORFDB		2
3	ACGM00	COVER ASSY,REAR	ACGM0067801	KG220 ORFDB	Dark Blue	
4	MCCC00	CAP,EARPHONE JACK	MCCC0032701	KG220 ORFDB	Dark Blue	48
4	MCJN00	COVER,REAR	MCJN0049501	KG220 ORFDB	Dark Blue	50
4	MGAD00	GASKET,SHIELD FORM	MGAD0103201	KG220 ORFDB (GASKET SHIELD FORM IO)		47
4	MGAD02	GASKET,SHIELD FORM	MGAD0111301	KG220 ORFDB (GASKET SHIELD FORM, FPCB)	Silver	45
4	MLEA00	LOCKER,BATTERY	MLEA0028601	KG220 ORFDB	Dark Blue	52
4	MSDB00	SPRING,COIL	MSDB0001701	G7000	Pearl White	51
4	MTAC00	TAPE,SHIELD	MTAC0034801	KG220 ORFDB (TAPE SIM REAR)		46
3	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK		34,54
3	MBJA00	BUTTON,DIAL	MBJA0020201	KG220 ORFDB		44
3	MCCF00	CAP,MOBILE SWITCH	MCCF0032401	KG220 ORFDB	Silver	53
3	MLAK00	LABEL,MODEL	MLAK0006301	LG (30.5x21.5 4-1R)	Pearl White	
5	MLAB00	LABEL,A/S	MLAB0000601	HUMIDITY STICKER		
5	MLAC00	LABEL,BARCODE	MLAC0003301	EZ LOOKS(use for PCB ASSY MAIN(hardware))		

12. EXPLODED VIEW & REPLACEMENT PART LIST

<Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
4	SACY00	PCB ASSY,FLEXIBLE	SACY0041901			18
5	SACB00	PCB ASSY, FLEXIBLE,INSERT	SACB0027601			
6	SBCL00	BATTERY,CELL,LITHIUM	SBCL0001303	2 V,1 mAh,COIN ,SOLDER TYPE BACKUP BATTERY		
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0037001			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0020801			
7	CN101	CONNECTOR, BOARD TO BOARD	ENBY0013007	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 1.5 / HEADER FOR LCM FPCB		
7	CN102	CONNECTOR, BOARD TO BOARD	ENBY0019501	20 PIN,.4 mm,ETC , ,H=1.5, Socket		
7	CN103	CONNECTOR,FFC/FPC	ENQY0010401	41 PIN,.3 mm,ETC , ,H=1.2		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0029901			
6	SPCY00	PCB,FLEXIBLE	SPCY0069001	POLYI ,.4 mm,MULTI-5 ,		
4	SJMY00	VIBRATOR,MOTOR	SJMY0006503	3 V,0.08 A,10*3.45 ,17mm double tape		21
4	SUSY00	SPEAKER	SUSY0021401	ASSY ,8 ohm,89 dB,15 mm,		20
4	SVCY00	CAMERA	SVCY0010101	CMOS ,VGA ,Omnivision Sensor		24
4	SVLM00	LCD MODULE	SVLM0018201	MAIN ,128*128 ,35.78*40.05*2.8 ,65k ,CSTN ,TM ,S- 44206D ,Single		19
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0013701	8.5:1 , -10 dBd , GSM900/DCS1800/DCS1900 Internal Pb- free		49
3	SAFY00	PCB ASSY,MAIN	SAFY0156301			57
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0055601			
5	ADCA	DOME ASSY,METAL	ADCA0046801	KG220 ORFDB		
5	SPKY00	PCB,SIDEKEY	SPKY0027401	POLYI ,0.4 mm,DOUBLE ,		
5	SUMY00	MICROPHONE	SUMY0003802	FPCB , -42 dB,4*1.5 ,		
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0078501			
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0069101			
6	C100	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C101	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C108	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C110	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C116	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C119	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C120	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C121	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C122	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C123	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C128	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C129	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C136	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C141	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C142	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C143	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C144	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C145	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C146	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C147	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C148	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C149	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C150	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C151	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C152	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C153	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C200	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C203	CAP,TANTAL,CHIP,MAKER	ECTZ0003602	22 uF,6.3V ,M ,STD ,2012 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C208	CAP,TANTAL,CHIP,MAKER	ECTZ0003701	10 uF,6.3V ,M ,STD ,2012 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C210	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C215	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C218	CAP,CHIP,MAKER	ECZH0001116	270 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C222	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C223	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C224	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C225	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C226	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C228	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C229	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C300	CAP,TANTAL,CHIP,MAKER	ECTZ0003602	22 uF,6.3V ,M ,STD ,2012 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C303	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C304	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C306	CAP,CERAMIC,CHIP	ECCH0000104	3 pF,50V,C,NP0,TC,1005,R/TP		
6	C322	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C323	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C402	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C405	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C408	CAP,TANTAL,CHIP,MAKER	ECTZ0005201	10 uF,6.3V ,M ,L _ESR ,1608 ,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C410	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C412	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C414	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C415	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C421	CAP,CHIP,MAKER	ECZH0001420	1 uF,10V ,K ,X5R ,HD ,1608 ,R/TP		
6	C500	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C501	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C502	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C503	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C506	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C507	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C508	CAP,CERAMIC,CHIP	ECCH0000186	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C511	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C512	CAP,CERAMIC,CHIP	ECCH0000128	100 pF,50V,J,NP0,TC,1005,R/TP		
6	C514	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C515	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C516	INDUCTOR,CHIP	ELCH0005001	2.2 nH,S ,1005 ,R/TP ,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C519	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C521	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C522	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C523	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C524	CAP,CHIP,MAKER	ECZH0000803	2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C525	CAP,CERAMIC,CHIP	ECCH0000178	1.8 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	C526	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C527	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C528	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C529	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C530	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C531	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C532	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	C533	CAP,CHIP,MAKER	ECZH0000822	1.5 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C534	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C535	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C536	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C537	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C538	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C540	CAP,CERAMIC,CHIP	ECCH0000135	270 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C541	CAP,CERAMIC,CHIP	ECCH0000135	270 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C543	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C544	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C545	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C546	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C547	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
6	C588	CAP,CHIP,MAKER	ECZH0001002	0.5 pF,50V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C600	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C601	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C602	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C603	CAP,CERAMIC,CHIP	ECCH0000167	0.1 uF,6.3V,K,X5R,HD,1005,R/TP		
6	C604	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	CN300	CONNECTOR,I/O	ENRY0005301	3 PIN,0.5 mm,ETC , ,1.48Offset		
6	CN600	CONNECTOR, BOARD TO BOARD	ENBY0013008	60 PIN,0.4 mm,STRAIGHT ,AU ,STACKING HEIGHT 1.5 / SOCKET FOR LCM FPCB		
6	D100	DIODE,SWITCHING	EDSY0017301	VSM ,15 V,100 mA,R/TP ,PB-FREE		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	D101	DIODE,SWITCHING	EDSY0012101	US-FLAT ,30 V,1 A,R/TP ,2.5*1.25*0.6(t)		
6	FB400	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	FL500	FILTER,SEPERATOR	SFAY0005602	900 ,1800.1900 ,2.7 dB,3.0 dB,30 dB,ETC ,5.6*4.5*1.4, TRIPLE FEM		
6	FL600	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL601	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL602	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL603	FILTER,EMI/POWER	SFEY0007102	SMD ,5.6 V,SMD ,4ch. R-Varistor Array(400Ohm,25pF)		
6	FL604	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(500Ohm,15pF), Pb-free		
6	FL605	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(500Ohm,15pF), Pb-free		
6	FL606	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(500Ohm,15pF), Pb-free		
6	FL607	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(500Ohm,15pF), Pb-free		
6	FL608	FILTER,EMI/POWER	SFEY0007103	SMD ,18 V, ,SMD ,4ch. R-Varistor Array(500Ohm,15pF), Pb-free		
6	J100	CONN,SOCKET	ENSY0016601	6 PIN,ETC , ,2.54 mm,H=2.5		
6	J200	CONN,JACK/PLUG, EARPHONE	ENJE0002301	3,5 PIN,G7000 EAR JACK 3 pole, 5 pin KSD		
6	L500	INDUCTOR,CHIP	ELCH0005014	5.6 nH,S ,1005 ,R/TP ,		
6	L501	INDUCTOR,CHIP	ELCH0001003	6.8 nH,J ,1005 ,R/TP ,chip inductor PBFREE		
6	L502	INDUCTOR,CHIP	ELCH0005005	27 nH,J ,1005 ,R/TP ,		
6	L599	INDUCTOR,CHIP	ELCH0004701	12 nH,J ,1005 ,R/TP ,		
6	Q100	TR,BJT,ARRAY	EQBA0002701	EMT6 ,150 mW,R/TP ,NPN, PNP, 150 mA		
6	Q101	TR,BJT,ARRAY	EQBA0000406	SC-70 ,0.2 W,R/TP ,CDMA,Common use		
6	Q102	TR,FET,P-CHANNEL	EQFP0004201	2.9*1.9*0.8(t) ,.7 W,20 V,-6 A,R/TP ,NDC652P upgrade(substitution) item, Pb free		
6	Q300	TR,BJT,NPN	EQBN0004801	SMT6 ,0.2 W,R/TP ,		
6	Q400	TR,BJT,NPN	EQBN0017701	TES6 ,150 mW,R/TP ,50 V, 100 mA, Dual Digital TR		
6	Q401	TR,FET,P-CHANNEL	EQFP0004501	SOT-323 ,.29 W,1.8 V,.86 A,R/TP ,P-Chanel MOSFET, Pb free		
6	R100	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R101	RES,CHIP	ERHY0000273	47K ohm,1/16W,J,1005,R/TP		
6	R102	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R103	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP		
6	R104	RES,CHIP	ERHY0000226	220 ohm,1/16W,J,1005,R/TP		
6	R105	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP		
6	R106	RES,CHIP	ERHY0000258	7.5K ohm,1/16W,J,1005,R/TP		
6	R109	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R110	RES,CHIP	ERHY0000229	300 ohm,1/16W,J,1005,R/TP		
6	R111	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R112	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R113	RES,CHIP	ERHY0000512	10M ohm,1/16W,J,1608,R/TP		
6	R115	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R117	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP		
6	R118	RES,CHIP	ERHY0000405	10 ohm,1/16W,J,1608,R/TP		
6	R119	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R120	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP		
6	R121	RES,CHIP	ERHY0000244	1.5K ohm,1/16W,J,1005,R/TP		
6	R122	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R123	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R125	RES,CHIP	ERHY0000225	200 ohm,1/16W,J,1005,R/TP		
6	R126	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R127	RES,CHIP	ERHY0000247	2.2K ohm,1/16W,J,1005,R/TP		
6	R129	RES,CHIP	ERHY0001102	0.2 ohm,1/4W ,F ,2012 ,R/TP		
6	R131	RES,CHIP	ERHY0000230	330 ohm,1/16W,J,1005,R/TP		
6	R132	RES,CHIP	ERHY0000152	82K ohm,1/16W,F,1005,R/TP		
6	R133	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP		
6	R135	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP		
6	R137	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R153	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R200	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R201	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP		
6	R202	RES,CHIP	ERHY0000244	1.5K ohm,1/16W,J,1005,R/TP		
6	R203	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R205	RES,CHIP	ERHY0000296	1M ohm,1/16W,J,1005,R/TP		
6	R206	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP		
6	R207	RES,CHIP	ERHY0000202	4.7 ohm,1/16W,J,1005,R/TP		
6	R208	RES,CHIP	ERHY0000291	330K ohm,1/16W,J,1005,R/TP		
6	R209	RES,CHIP	ERHY0000296	1M ohm,1/16W,J,1005,R/TP		
6	R211	RES,CHIP	ERHY0000131	20K ohm,1/16W,F,1005,R/TP		
6	R212	RES,CHIP	ERHY0000138	33K ohm,1/16W,F,1005,R/TP		
6	R213	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R214	RES,CHIP	ERHY0000282	120K ohm,1/16W,J,1005,R/TP		
6	R215	RES,CHIP	ERHY0000247	2.2K ohm,1/16W,J,1005,R/TP		
6	R216	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R217	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R218	RES,CHIP	ERHY0000250	3.3K ohm,1/16W,J,1005,R/TP		
6	R219	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R220	RES,CHIP	ERHY0000247	2.2K ohm,1/16W,J,1005,R/TP		
6	R315	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R317	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R318	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R319	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R321	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R322	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R323	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R325	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R328	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R329	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R330	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R332	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R333	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R334	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R335	RES,CHIP	ERHY0000213	47 ohm,1/16W,J,1005,R/TP		
6	R337	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R340	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R359	RES,CHIP	ERHY0000262	12K ohm,1/16W,J,1005,R/TP		
6	R360	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP		
6	R361	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP		
6	R362	RES,CHIP	ERHY0000262	12K ohm,1/16W,J,1005,R/TP		
6	R363	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP		
6	R364	RES,CHIP	ERHY0000203	10 ohm,1/16W,J,1005,R/TP		
6	R402	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R407	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R408	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R412	RES,CHIP	ERHY0000265	20K ohm,1/16W,J,1005,R/TP		
6	R414	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R415	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R416	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R417	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R430	RES,CHIP	ERHY0000262	12K ohm,1/16W,J,1005,R/TP		
6	R431	RES,CHIP	ERHY0000262	12K ohm,1/16W,J,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R499	RES,CHIP	ERHY0000274	51K ohm,1/16W,J,1005,R/TP		
6	R500	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R501	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R502	INDUCTOR,CHIP	ELCH0005014	5.6 nH,S ,1005 ,R/TP ,		
6	R503	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R505	RES,CHIP	ERHY0008201	24 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP	ERHY0000226	220 ohm,1/16W,J,1005,R/TP		
6	R507	RES,CHIP	ERHY0000226	220 ohm,1/16W,J,1005,R/TP		
6	R508	RES,CHIP	ERHY0000224	180 ohm,1/16W,J,1005,R/TP		
6	R509	RES,CHIP	ERHY0000210	30 ohm,1/16W,J,1005,R/TP		
6	R510	RES,CHIP	ERHY0000224	180 ohm,1/16W,J,1005,R/TP		
6	R511	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R513	RES,CHIP	ERHY0000241	1K ohm,1/16W,J,1005,R/TP		
6	R515	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R516	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R518	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R519	RES,CHIP,MAKER	ERHZ0000205	1 Mohm,1/16W ,F ,1005 ,R/TP		
6	R520	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R521	RES,CHIP	ERHY0000263	15K ohm,1/16W,J,1005,R/TP		
6	R522	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R523	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R560	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R561	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R588	INDUCTOR,CHIP	ELCH0005001	2.2 nH,S ,1005 ,R/TP ,		
6	R624	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	R625	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R626	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R627	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R629	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R630	RES,CHIP	ERHY0000254	4.7K ohm,1/16W,J,1005,R/TP		
6	R631	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R632	RES,CHIP	ERHY0000258	7.5K ohm,1/16W,J,1005,R/TP		
6	R633	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R640	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R641	RES,CHIP	ERHY0000201	0 ohm,1/16W,J,1005,R/TP		
6	SW500	CONN,RF SWITCH	ENWY0002301	ANGLE ,SMD ,0.8 dB,		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	U100	IC	EUSY0206101	80-ACTIVE BALL STACKED CSP ,88 PIN,R/TP ,128 MLC NOR (L30 : TYAX) / 64-PSRAM / PB FREE		
6	U101	IC	EUSY0280001	CSP_BGA ,289 PIN,R/TP ,GSM Onechip Baseband		
6	U102	IC	EUSY0227901	SON5-P-0.35(fSV) ,5 PIN,R/TP ,2-INPUT AND GATE, Pb Free		
6	U201	IC	EUSY0077701	SC70-5 ,5 PIN,R/TP ,1.8V Low Voltage Comparator with Rail-to-Rail Input, Pb Free		
6	U203	IC	EUSY0111601	32-PIN QFN ,32 PIN,R/TP ,MA-3 / 40 TONES / FM + WAVEFORM TABLE		
6	U204	IC	EUSY0119002	4X3 UCSP / CODE : B12-4 ,10 PIN,R/TP ,DUAL SPDT ANALOG SWITCHES(Pb Free)		
6	U401	IC	EUSY0145902	SOT23-5 ,5 PIN,R/TP ,300mA, 2.85V,LDO		
6	U403	IC	EUSY0240501	BGA(6.2*7.2*1.3t) ,96 PIN,R/TP ,128Kbyte SRAM, VGA Camera IC		
6	U404	IC	EUSY0238702	TSOPJW-12 ,12 PIN,R/TP ,3PORT Charge Pump(AAT2154 Low cost version)		
6	U500	PAM	SMPY0008301	35 dBm,53 %,0.0000025 A, dBc,50 dB,6.0*6.0*1.2 ,SMD ,FOR QUAD BAND GSM AND GPRS		
6	U501	IC	EUSY0223202	5.0*5.0 ,32 PIN,R/TP ,AERO11 TRANSCEIVER, D Version		
6	U502	IC	EUSY0077201	SC70 ,5 PIN,R/TP ,Inverter Gate, Pb Free		
6	U503	IC	EUSY0118602	SOT23 ,5 PIN,R/TP ,2.85V/150mA Low Noise uCap LDO Regulator, PBFREE		
6	VA200	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA201	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA202	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA203	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA204	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA205	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA206	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA300	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA310	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	VA311	VARISTOR	SEVY0003901	5.5 V , ,SMD ,480pF, 1005		
6	X100	X-TAL	EXXY0015601	.032768 MHz,20 PPM,7 pF,65000 ohm,SMD ,6.9*1.4*1.3		
6	X500	VCTCXO	EXSK0006601	26 MHz,2.5 PPM,10 pF,SMD ,3.2*2.5*1.2 ,Pb Free		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0068301			
6	C216	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C309	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	C312	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C313	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C314	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C315	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C316	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C320	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C321	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C400	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C401	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C403	CAP,CERAMIC,CHIP	ECCH0000117	27 pF,50V,J,NP0,TC,1005,R/TP		
6	FB100	FILTER,BEAD,CHIP	SFBH0007102	10 ohm,1005 ,Ferrite Bead		
6	LD300	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD301	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD302	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD303	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD304	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD305	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD306	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD307	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD308	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD309	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD310	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD311	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD312	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD313	DIODE,LED,CHIP	EDLH0006001	Blue ,1608 ,R/TP ,Blue SMD LED		
6	LD400	DIODE,LED,CHIP	EDLH0003401	RED, GREEN ,ETC ,R/TP ,SIZE 1315 , GSM DUAL LED		
6	R300	RES,CHIP	ERHY0000261	10K ohm,1/16W,J,1005,R/TP		
6	R301	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R302	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R303	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R320	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R324	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R326	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R331	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		

12. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No.	Description	Part Number	Specification	Color	Remark
6	R336	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R339	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R341	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R342	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R343	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R344	RES,CHIP	ERHY0000237	680 ohm,1/16W,J,1005,R/TP		
6	R345	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R346	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R347	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R348	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R349	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R350	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R351	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R352	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R353	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R354	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R355	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R356	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R357	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R358	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	R400	RES,CHIP	ERHY0000280	100K ohm,1/16W,J,1005,R/TP		
6	R403	RES,CHIP	ERHY0000228	270 ohm,1/16W,J,1005,R/TP		
6	R404	RES,CHIP	ERHY0000220	100 ohm,1/16W,J,1005,R/TP		
6	U202	IC	EUSY0204801	SC82-AB (SC70-4) ,4 PIN,R/TP ,80mA CMOS LOW IQ LDO VOLTAGE REGULATOR / 2.5V		
6	U400	IC	EUSY0200301	Leadless chip ,6 PIN,R/TP ,Hall S/W, Pb Free		
6	VA301	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA302	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA303	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA304	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA305	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA306	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA307	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA312	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA313	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
5	SPFY00	PCB,MAIN	SPFY0121401	FR-4 ,1 mm,MULTI-8 ,		
5	WSYY00	SOFTWARE	WSYY0337101	KG220P40FL-33-V09e-208-01 Feb 27 2006		

12. EXPLODED VIEW & REPLACEMENT PART LIST

12.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No.	Description	Part Number	Specification	Color	Remark
3	SBPL00	BATTERY PACK,LI-ION	SBPL0081801	3.7 V,830 mAh,1 CELL,PRISMATIC ,KG220(Butterfly) BATT(Orange logo), Pb-Free	Dark Blue	55
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0003204	L1200 ,MONO TYPE		
3	SSAD00	ADAPTOR,AC-DC	SSAD0007837	FREE ,50 Hz,5.2 V, .8 A,CE, CB ,		

Note
